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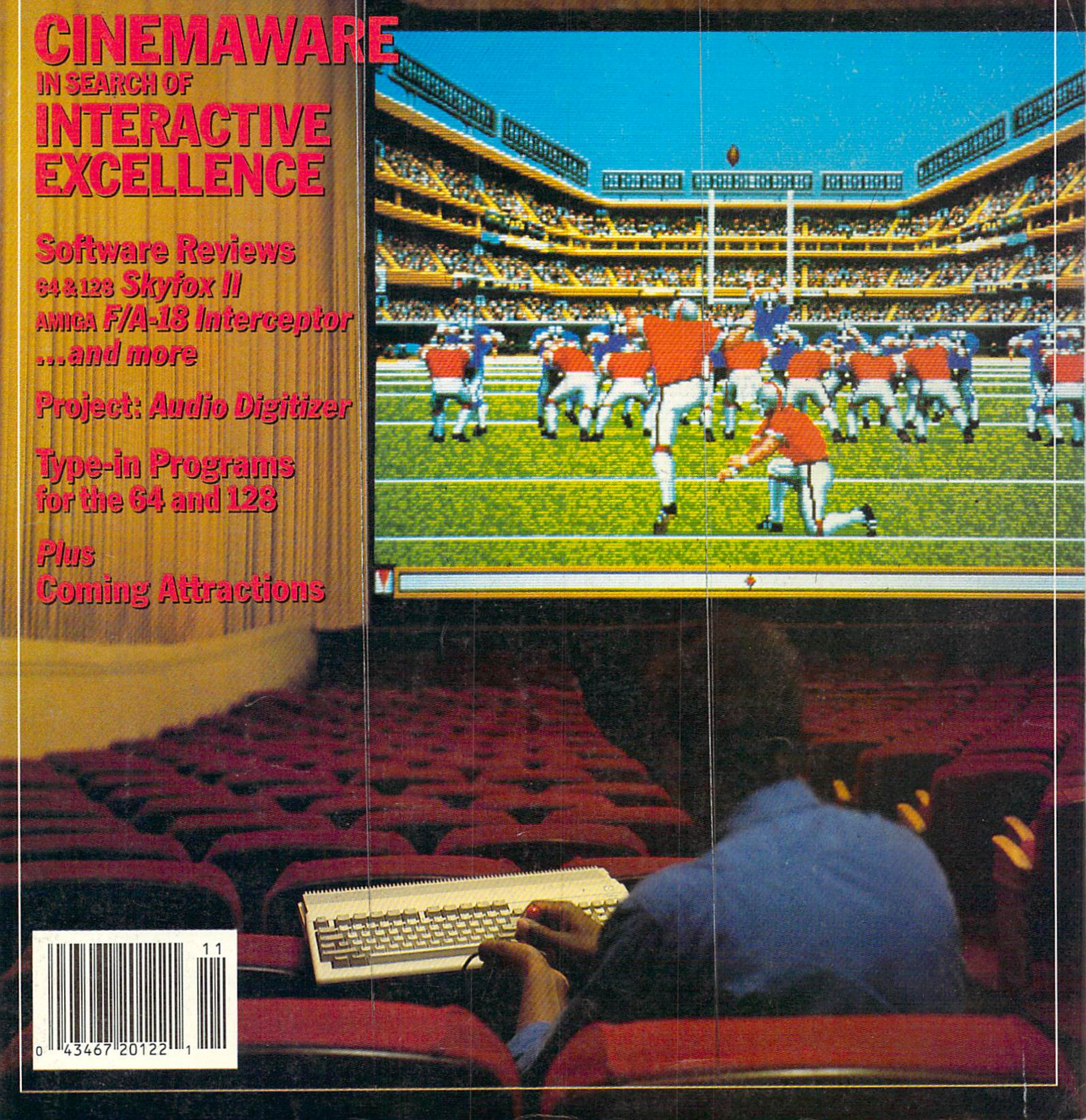
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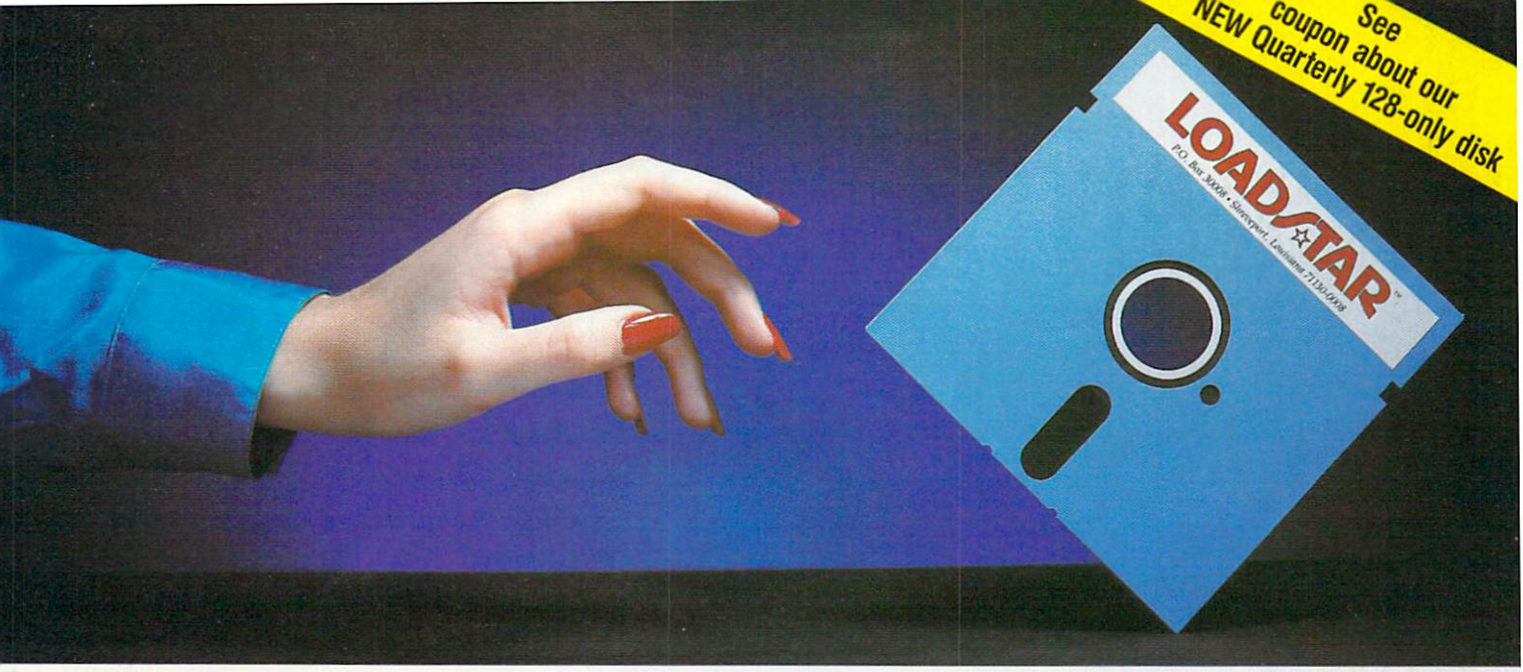
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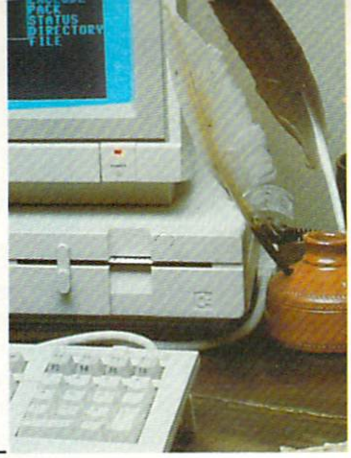
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Commodore
M A G A Z I N E

NOVEMBER 1988, *Volume 9, Number 11*



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Commodore 128 owners can get down to business with a large variety of programs for word processing, publishing, finances, database management, CAD and others. Here's an overview of what's available in the 128 business and productivity world.
by Gary V. Fields

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In the first of two installments, John looks into his crystal ball to predict what we can expect from major software developers like Access, Accolade, Epyx and Electronic Arts through the holidays and into 1989.
by John Jermaine

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Calling their software "interactive movies," Cinemaware has shown that the Amiga and interactive games can do more than take input from a player and display the results. Their new releases break new ground in the search for the ultimate interactive experience.
by Russ Ceccola

COVER PHOTO: *Charles Bartholomew*
Software: *TV Sports Football* by Cinemaware Corporation

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To the Editor:

It is quite apparent to all (especially 16/32 bit computer users) that memory prices have increased dramatically. 256K dynamic RAM chips have jumped from $2 to approximately $12–16 per chip in the past few months. Multiply this by the 32 chips it takes to make a 2MB card, and you get a good idea of how dramatic this is (before: $64, now: $384).

Prices have risen due to the rise of the yen over the dollar and one other "problem" we can eliminate if we personal computer users raise our voices to it.

About a year ago there was protest over the fact that Japan was virtually "dumping" RAM chips into the U.S. market. Japanese companies can produce RAM chips much more cheaply than U.S. companies can, thus, Japan can effectively beat out any U.S. competition in the chip market. Congress reacted by placing an embargo on Japanese RAM chips to protect U.S. chip companies. This created a shortage and raised prices dramatically.

In Congress' infinite wisdom, they *did* protect the U.S. RAM chip market, however, Japanese computer companies continue to get cheap RAM chips while U.S. computer companies are forced to raise their products' prices. Personally, I would rather let Japan control the RAM chip market than the whole computer market.

What can we do to protect the U.S. computer companies, lower RAM chip *and* U.S. computer prices? Push our Congress to repeal the RAM chip embargo. Write to your representatives in Congress. If we can raise enough interest maybe they will listen. After all, elections are coming and congressmen would just love to make their constituents happy so they can continue their jobs! (I love democracy!)

Sincerely,
Glen Cheek
Utica, MI

To the Editor:

In your July 1988 issue is an excellent article by Mark Jordan on writing programs for publication. As Managing Editor of *LOADSTAR*, I was especially interested and pleased by Mark's comments on "market savvy." He was right on target about writing the program and article and sending them to the major Commodore markets, except he didn't mention disk magazines.

Every monthly issue of *LOADSTAR*, a collection of original programs and articles, has over 2000 blocks of code and text that are written by programmers at home. As the official vehicle for *Commodore Magazine*'s type-in programs, we feature not only these programs but a half dozen or more of the best programs sent to us by home programmers or written by our staff. Unlike the paper-based magazines, we have no size restrictions. We like programs that have hi-res screens, custom fonts, sprites, music, on-screen documentation, frills, etc. These are things that are almost impossible to type in because of the size of the data. Also, with *LOADSTAR* an accompanying article isn't necessary.

So if you've written a program that has less than 20 blocks of code, by all means send it to *Commodore Magazine*; but if you're like me and can't stop at 20 (or even 50) blocks, submit your programs to *LOADSTAR*.

Yours truly,
Fender Tucker
Managing Editor,
LOADSTAR

Editor's Response: *Sorry for the oversight, Fender. Readers can submit programs to:* LOADSTAR, *P.O. Box 30008, Shreveport, LA 71130-0008.*

To the Editor:

I recently bought a Commodore 128. I have been told by many people that there are vast amounts of CP/M software available for us Commodore 128 users. My question is why have I not seen your advertisers include software advertisements promoting CP/M software? If they don't stock the CP/M software, they are losing out on a tremendous new market of Commodore 128 owners. Advertisers take heed of this request!

Sincerely,
Steve Aslan
Philippines

Editor's Response: *For more information on CP/M software for your Commodore 128, contact: Poseidon Electronics, 103 Waverley Place, New York, NY 10011, (212) 777-9515. Another good source of CP/M information is* FOGHORN, *a monthly publication for CP/M users. For details contact FOG, P.O. Box 3474, Daly City, CA 94015-0474.*

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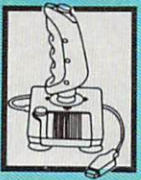
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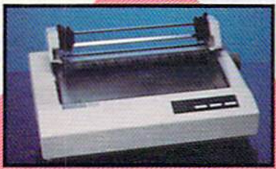
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Star Micronics Color Printer

Star Micronics has introduced a seven-color dot matrix printer for the Commodore 64 or 128. The **NX-1000C Rainbow** comes with a standard Commodore serial interface, four on-board fonts and a 4K buffer. Near-letter-quality text is possible at 36 characters per second; draft output is generated at 144 cps. The four-color ribbon prints black, red, yellow, blue, orange, green and violet. Suggested retail price for the **NX-1000C Rainbow** is $299. For more information contact: Star Micronics, Inc., 200 Park Ave., Suite 3510, New York, NY 10166. Or call: (212) 986-6770.

Starglider II

Starglider II for the Amiga will be coming your way from Rainbird Software. Players go into battle with their interplanetary spaceship, Icarus. Three-dimensional graphics, animation and sound effects add to game play. **Starglider II** has a suggested retail price of $44.95. For details contact: Rainbird Software, 3885 Bohannon Dr., Menlo Park, CA 94025. Phone: (415) 322-0412.

Micron Moves to 2000

Micron Technology has announced that all future marketing efforts in the Amiga family will be directed exclusively at the Amiga 2000. Effective immediately, no orders will be accepted for Amiga 500 and 1000 memory expansion units. Registered users of Amiga 500 and 1000 Micron products will continue to be supported through Micron's toll-free support line: (800) 642-7661.

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Microfiche Filer Plus

Software Visions, Inc. has introduced a professional version of their popular Amiga database program. **Microfiche Filer Plus** provides new features: automatic field calculations, HAM and overscan graphics support, new printing features and optional macro programming. **Microfiche Filer Plus** retails for $179 (the original **Microfiche Filer** is still available for $99). Registered owners of **Microfiche Filer** can upgrade to **Microfiche Filer Plus** for $39 (plus $4 shipping and handling in the U.S.). For further information contact: Software Visions, Inc., P.O. Box 3319, Framingham, MA 01701. Or call: (800) 527-7014, in MA call (508) 875-1238.

QDisk

Brown Boxes, Inc. along with Herne Data Systems Ltd. has introduced **QDisk,** a device driver for the Quick Brown Box that lets it be used as a non-volatile RAM disk in the Commodore 128's CP/M mode. **QDisk** can be used with all CP/M software running on the 128 and has a suggested retail price of $9.95. For further information contact: Herne Data Systems Ltd., P.O. Box 714 Station C, Toronto, Ontario, M6J 3S1, Canada. Phone: (416) 535-9335.

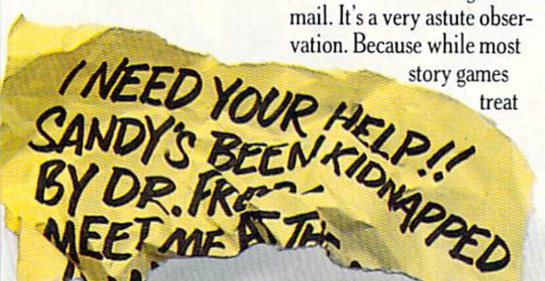
PC Public Domain

Commodore PC-10, PC-20 and Colt users can get a free catalog of MS DOS-compatible public domain software by writing to: Sector Systems, 416 Ocean Ave., Marblehead, MA. The catalog lists business, engineering and personal use programs available for a copying charge of $4 per disk ($3 per disk for ten or more).

NEW HOPE FOR BATTERED STORY GAMERS.

"THERE'S A LOT I LIKE about computer adventures, but it sure isn't fun getting killed all the time. That's why *Maniac Mansion* is so refreshing — I can play from start to finish without dying once!"

That's more than great fan mail. It's a very astute observation. Because while most story games treat

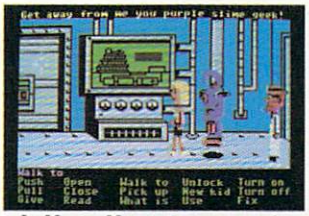


you like the meat in the dog food factory, Lucasfilm story games treat you like a human being who just wants some good clean fun.

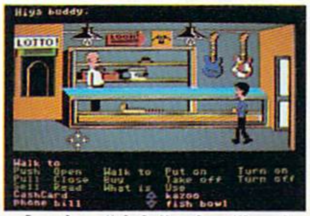
The fun starts with an engaging plot, hot graphics and tasty puzzles. But what keeps it going is a unique design that lets you play the game instead of fighting the computer.

THE NO-TYPING INTERFACE.

Today's story games evolved from text adventures. The



In *Maniac Mansion*,® a movie-style "cut-scene" quickly establishes the characters' personalities.



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interface, in most cases, remained in the swamp.

With conventional story games, whenever you want your character to do something, you type. And type. And type.

Suppose you want to pick up a green leafy object. Well, you might try typing, "pick up plant." If that doesn't work, you might try "bush," "shrub," "tree," and so on. After a while, you might try a different form of entertainment.

Not with Lucasfilm's new "point 'n' click" interface, though. All the words you need are right on the screen. Just click the cursor on them to choose characters, objects, and actions.

Now you can play an entire fifty hour game without typing a single word. Or putting your life on hold until you realize the green leafy thing is a... plastic fern.

MORE STORY. LESS GORY.

Most story game designers seem to think people love to get clobbered.

We don't. After all, how much fun can it be to have a fatal accident every three and a half minutes... then reload your saved game, take a few timid steps forward, and save it again. Seems more like paranoia than entertainment.

That's why Lucasfilm story games make it downright difficult to die. Oh, you'll get into major hot water all right, but you'll have the fun of getting out of it, too.

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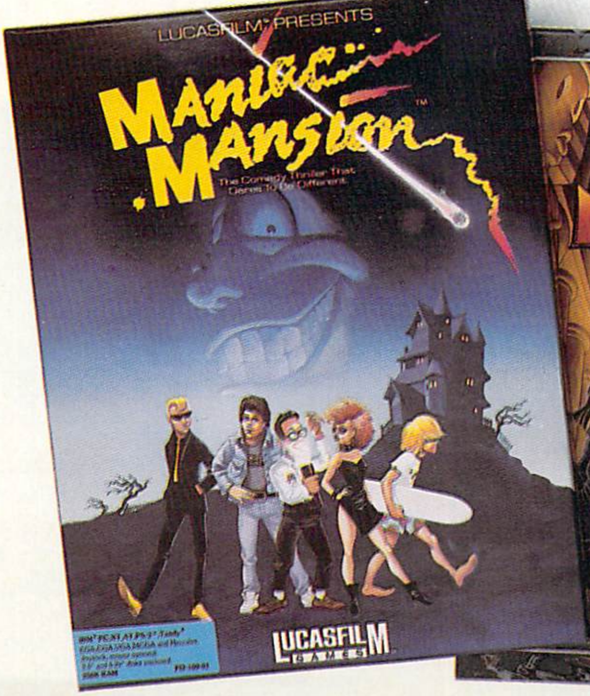
scientist, and a hilariously creepy rescue mission.

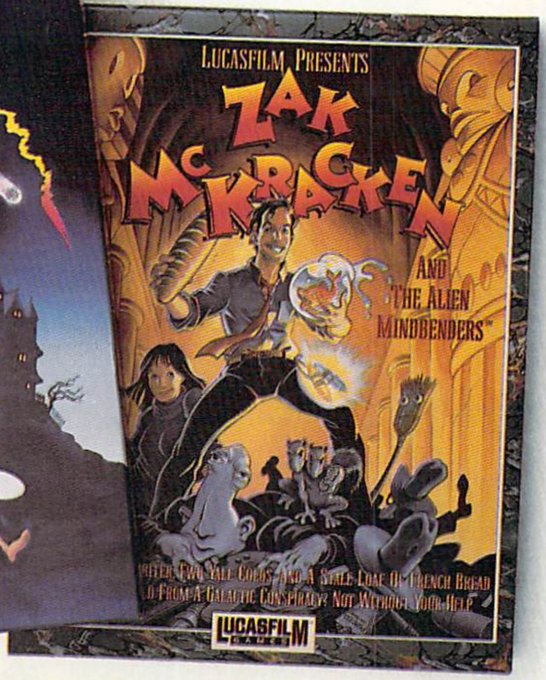
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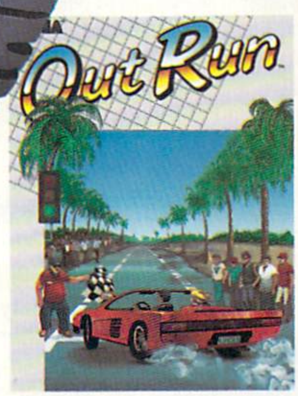

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M I N D S C A P E

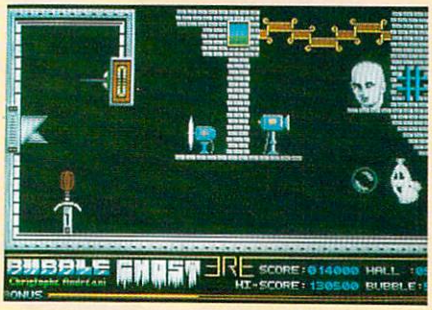
Visit your retailer or call 1-800-221-9884 for VISA and MasterCard orders. To purchase by mail, send your card number and expiration date, check or money order for $34.95 (Out Run), $29.95 (Space Harrier and Alien Syndrome), (C64 & C128), and $49.95 (Out Run and Space Harrier), $39.95 (Alien Syndrome), (Amiga and Atari ST), (plus $3.00 handling to Mindscape, Inc. P.O. Box 1167, Northbrook, IL 60065. Allow 3-5 weeks for delivery. Lawyers like this part: Screen shots represent Atari ST version; others may vary.

Solitaire Royale

Commodore Amiga owners can now play eight versions of solitaire on their computers. **Solitaire Royale** from Spectrum HoloByte features ten choices of card backs and five different card faces as well as sound capabilities. A children's menu with Concentration, Paris and The Wish is also available. Tournament and Tour modes let players compete against each other. **Solitaire Royale** retails for $29.95. For further information contact: Spectrum HoloByte, 2061 Challenger Dr., Alameda, CA 94501. Phone: (415) 522-3584.

Computer Scrabble™

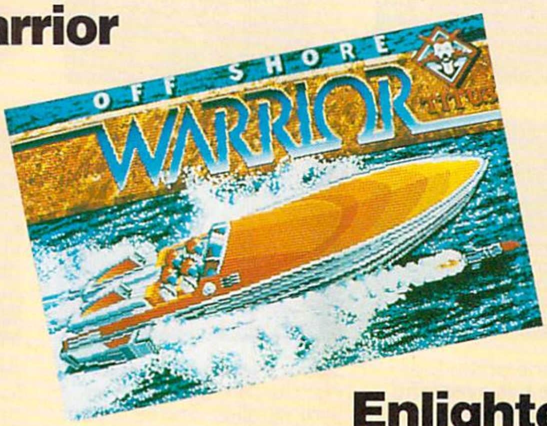
Another old favorite is now available on your computer: **Computer Scrabble** produced by Virgin Games for Electronic Arts is available for the Commodore 64 and Amiga. A clock allows players to choose a time limit per turn of 30 seconds to five minutes. The game includes a built-in wordspeller that checks every move. Four levels of difficulty are included, so all ages can play. Up to four people can play at one time, or players can go one-on-one against the computer. **Computer Scrabble** for the Amiga has a suggested retail price of $39.95; the Commodore 64 version retails for $29.95. For more information contact: Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. Or call: (415) 571-7171.



Bubble Ghost

Accolade's **Bubble Ghost** for the Commodore 64 and Amiga is an action arcade game featuring a ghost trapped in a 35-room castle. The player assumes the title role and tries to blow a bubble through all the rooms in the castle, a task of increasing difficulty. The obstacles include electric fans, candles, disembodied heads, knives and scissors. Play time is limited by **Bubble Ghost**'s air supply; as the ghost turns red the player loses time and points. **Bubble Ghost** for the Commodore 64 carries a suggested retail price of $29.95; the Amiga version sells for $34.95. For more details contact: Accolade, 550 Winchester Blvd., Suite 200, San Jose, CA 95128. Or call: (408) 985-1700.

Off Shore Warrior



In **Off Shore Warrior** players pilot power boats armed with two missiles and go up against each other in a fight to the finish. Amiga warriors must also attempt to jump waves and rocks while firing at opponents. **Off Shore Warrior,** produced by Titus Software, retails for $39.95. For details contact: Titus Software, 20432 Corisco St., Chatsworth, CA 91311. Phone: (818) 709-3693.

Craps Academy

MicroIllusions has introduced **Craps Academy** for the Amiga. The program teaches you the ins and outs of the dice game with pop-up menus that explain how to place your bets. Choose Las Vegas or Atlantic City rules, or adjust the rules to your own design. One to four players can compete. **Craps Academy** retails for $39.95. For details contact: MicroIllusions, 17408 Chatsworth St., Granada Hills, CA 91344. Phone: (800) 522-2041.

Lights! Camera! Action!

Aegis Development has released **Lights! Camera! Action!** for the Amiga. The desktop presentation program combines pictures, animation, sound and music into slide show presentations. The program is compatible with IFF picture files, ANIM files, IFF sampled sounds and **Aegis Sonix** music scores. **Lights! Camera! Action!** lets the budding director incorporate over 40 different screen transitions. The program requires a minimum of one megabyte of RAM and two disk drives and retails for $79.95. For further information contact: Aegis Development, 2115 Pico Blvd., Santa Monica, CA 90405. Or call: (213) 392-9972.

Enlightenment and Black Lamp

Rainbird Software has introduced the first two titles in a new line of action/adventure games for the Commodore 64 and Amiga. **Enlightenment** pits you against an evil wizard and his undead cronies in a fight for the ten lands of Belorn. Fifteen levels of difficulty, 32 spells, a five-level dungeon and five different characters will keep you busy in this fast-paced game.

Black Lamp is a medieval melodrama in which Jolly Jack combats animated animals and other characters in quest to find the enchanted black lamp guarded by a ferocious dragon.

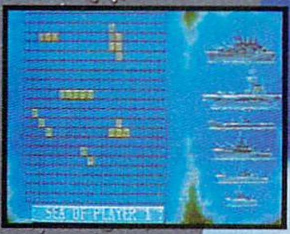
Both titles retail for $19.95 on the Commodore 64; Amiga versions are priced at $24.95. For more information contact: Rainbird Software, 3885 Bohannon Dr., Menlo Park, CA 94025. Phone: (415) 322-0412.

YOUR BATTLESHIP JUST BIT THE BIG ONE.

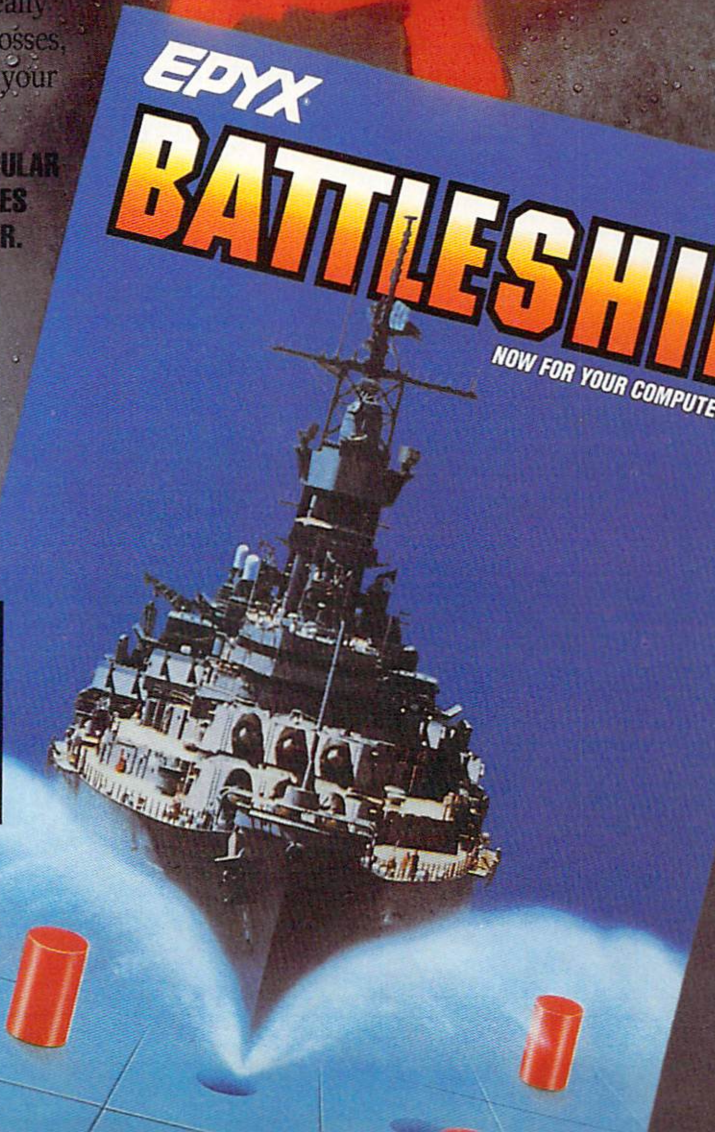
Now, you're mad. Really flamed. So assess your losses, aim your guns and turn your enemy into fish food.

ONE OF THE MOST POPULAR GAMES OF ALL TIME COMES TO LIFE ON THE COMPUTER.

As commander of a powerful naval fleet, you'll see destroyers and carriers sinking in a cloud of smoke. Watch planes strafing by so low, you'll practically feel the pilots breathing.



Commodore 64/128, Amiga, Atari ST, IBM PC and compatibles. Battleship is a trademark of Milton Bradley used under license. © Milton Bradley. All rights reserved. Screens from Atari ST.



See shrapnel flying through the air like it's the 4th of July, without a picnic.

If you're still floating when it's all over, you'll be honored in a glorious, well-deserved victory celebration.



Battleship. So real, you'll taste the salt water.



Sink your opponent faster and easier using an EPYX high performance joystick.

EPYX®

Napoleon, Napoleon

Waterloo is coming to your Commodore 64. **Battles of Napoleon,** from SSI/Electronic Arts lets you choose from scenarios like Waterloo, Quatre Bras and Borodino, or use the construction set to change weapons, capabilities and maps. **Battles of Napoleon** retails for $49.95.

Electronic Arts is also marketing Datasoft's **Napoleon in Russia—Borodino 1812** for the Commodore 64. This strategy simulation concentrates on Napoleon's defeat at the hands of the Russians in 1812. When you (as the Little Emperor) control infantry, cavalry and artillery, however, history just may be rewritten. The program retails for $24.95. For further information on both titles contact: Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. Phone: (415) 571-7171.



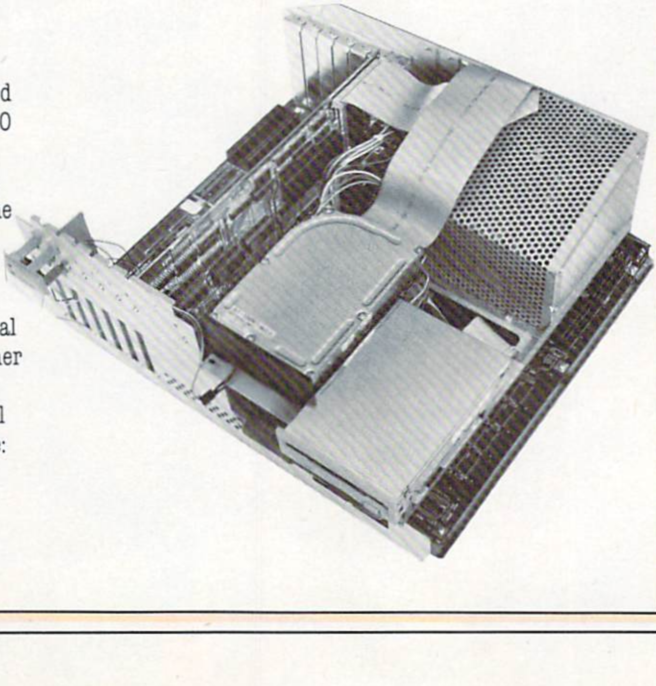
New York Mets all-star catcher, Gary Carter, tries out Epyx's latest Sports offering, **The Sporting News Baseball**, as Epxy product manager Jim Von Brunn and marketing technical coordinator Tony Garcia look on.

Computer Applications in Music

Computer Applications in Music: A Bibliography by Deta Davis has just been published by A-R Editions. Davis, who is Senior Music Cataloger at the Library of Congress, compiled 4585 citations organized by subject and indexed by author and title. Twenty-five categories include aesthetics, music education, digital audio, MIDI, psychology and sound generation. For details contact: A-R Editions, Inc., 315 W. Gorham St., Box E, Madison, WI 53703. Phone: (608) 251-2114.

SupraDrive 2000

Supra Corporation's new hard disk system for the Amiga 2000 comes in 20, 30 and 60MB capacities that retail for $699, $799 and $995, respetively. The **SupraDrive** features autobooting, fast access time, DMA access and an external SCSI port. Internal and external models are available. For further information contact: Supra Corporation, 1133 Commercial Way, Albany, OR 97321. Phone: (503) 967-9075.



C-ZAR-1

C-ZAR-1 from Diemer Development is an enhanced version of **C-ZAR,** the Editor/Librarian for the Amiga and Casio CA-1 Keyboard. **C-ZAR-1** has 64 "operation memories" that allow the player to define and save synthesizer performance preferences. **C-ZAR-1** is included on **C-ZAR Version 2.0** disks, at a suggested list price of $195. **C-ZAR** owners can obtain the upgrade and manual for $20. For further details contact: Diemer Development, 12814 Landale St., Studio City, CA 91604-1351. Phone: (818) 762-0804.

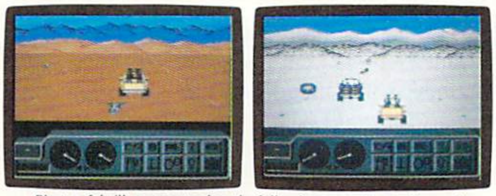
Looking Good

Ventana Press has published **Looking Good in Print,** a primer for desktop publishers who want to improve the graphic quality of their output. The book is neither hardware- nor software-specific, but introduces the reader to the elements of design. The book contains over 200 illustrations and includes a "design makeover" with before-and-after examples.

WordPerfect publishers will also be interested in **Desktop Publishing with WordPerfect,** another Ventana title. **Looking Good in Print** (210 pages, $23.95) and **Desktop Publishing with WordPerfect** (270 pages , $21.95) are available through book stores. For details contact: Ventana Press, P.O. Box 2468, Chapel Hill, NC 27515.



Get ready for four of the most challenging, rugged, rump-bumping cross



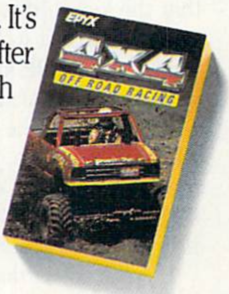
Plenty of thrills guaranteed on the following grounds: gumbo mud, packed snow, skid-sand, and the scrubbiest terrain south of the border.

country road racing courses this earth has to offer.

Fight the torturous terrain of Baja. Rocks, boulders, skid-sand, even a few spikey cactuses. And of course, heat that's hot enough to fillet any forehead. Ever had your hands stuck to the wheel? Permanently. You will when you endure the longest winter of your life in the ice, sleet and slosh of The Michigan Course. The Georgia Red Clay Course has enough mud to keep you a human fossil for 2,000 years. And then there's Death Valley. Get it. D-E-A-T-H Valley.

Start with pre-race strategy. Select and customize your personal vehicle. Your supplies. Your repair equipment. Believe us. You'll need everything. There are boulders, rivers, potholes, and mudbogs to contend with. What are mudbogs? You'll find out. (Just after you find out there's a Demon 4 x 4 chasing you all through the race. A Demon hellbent on your destruction.)

If you win enough races, collect enough points, only then will the Victor's Cup be yours. It's the least we can do. After all, you did go through hell to get there.



4x4 OFF-ROAD RACING
BY EPYX

Commodore 64/128, IBM & compatibles, Amiga

Compiled by Louis F. Sander

Lou Sander's Tips & Tricks

All you 128 users will be pleased with this month's emphasis on tips for your machine. As more and more people upgrade to the 128, we'll be showing you more and more ways to take advantage of the big machine's unique and wonderful features.

But you 64 owners never need to fear—your large and loyal numbers, plus the 128's built-in 64 mode, insure that we'll always have plenty of 64-specific goodies for you to use. Wasn't it great of Commodore to include 64 mode in their newer machine?

Last month, we mentioned that a book of Tips & Tricks was possibly in the works. This month, we're pleased to say that things are moving forward. As these words are being written, one of the computer world's best-known publishers is negotiating for the rights to the book. With a little bit of luck, you'll be seeing it very soon.

It won't take any luck for you to see the winners of our recent Programming Contest. The judging is under way now, and the best entries will be printed here next month. Charnetski, the Snaders and other well-known programmers are being strongly challenged by newcomers. It will be interesting to see who wins.

If you want to share programs or hints of your own, write them up and send 'em in. As always, our address is:
Louis F. Sander
P.O. Box 101011
Pittsburgh, PA 15237

Mighty Mite: This packs more punch in less space than any other program I can think of. Although it takes only three keystrokes to enter, it has a powerful effect that is totally different in 64 and 128 modes:

```
1 C [SHIFT O]
```

When entering the program, you needn't put a space after the line number. And the [SHIFT O] refers to the letter O, not to the numeral zero. When you LIST the program on a 64, you'll notice that the keyword has expanded to CONT. When you RUN it, you'll see that it locks up your entire system until the operator presses the STOP key. What other three-keystroke program can have such a powerful effect on computers and on humans?

In 128 mode, the keyword expands to CONCAT. When you RUN the program, it makes your computer print an 18-character error message! Where else can you find a program that makes your computer print six times as many characters as you had to type to enter it?

But the power doesn't end here. If you do a FRE(0) before and after you enter the program, you'll find that this three-keystroke miracle occupies seven bytes of memory!

If you NEW the program and re-enter it with line number 12345, you'll see that the longer seven-keystroke program also occupies seven bytes. Will wonders never cease?
Louis F. Sander
Pittsburgh, PA

64 Easy Windows: Windows, windows, windows. Everywhere you look, computers seem to be sporting windows. Even the 64 has turned into a windowing machine, with many great programs written to let it show windows on the screen.

What *are* those windows, anyway? In most cases, a window is nothing more than a rectangular block of text that pops up on an existing screen, usually containing some information that the user wants to see for a while, then remove. The window is usually smaller than the screen it appears on, so the effect is that of a Post-It™ note temporarily pasted over the material already on the screen.

The accompanying program lets you make windows of your own, without committing the gobs of memory that commercial windowing programs require.

Once lines 100-158 have been executed, SYS 828 will save your existing screen to the empty RAM at 49152. You can then print on the screen, erase it, draw some sort of window, or whatever you'd like to do for your temporary "window" effect. There's no need to make your window smaller than the whole screen.

When you're finished with the window, SYS 858 recalls the former screen from 49152, writing over anything you've printed to the screen in the meantime.

Lines 1000-1110 are a demonstration of the Easy Windows principle. You can remove them (and lines 100-130) when you incorporate Easy Windows into programs of your own. *[As a kindness to the creator, you might preserve the author's name in a REM. LFS.]*
Jeremy Hubble
Belton, TX

```
100 PRINT"[CLEAR,RVS,SPACE4]
    64 EASY WINDOWS BY JEREMY HUBBLE
    [SPACE4]"
110 PRINT"[DOWN]SYS 828 TO SAVE
    SCREEN"
120 PRINT"[DOWN]SYS 858 TO RETRIEVE
    SCREEN"
130 PRINT"[DOWN2]WORKING..."
140 FOR J=828 TO 887:READ K:POKE J,K
    :CS=CS+K: NEXT
```

```
150 IF CS<>7006 THEN PRINT"ERROR IN
    DATA STATEMENTS!!":STOP
151 DATA 160,000,185,000,004,153,000,
    192
152 DATA 185,000,005,153,000,193,185,
    000
153 DATA 006,153,000,194,185,232,006,
    153
154 DATA 232,194,200,208,229,096,160,
    000
155 DATA 185,000,192,153,000,004,185,
    000
156 DATA 193,153,000,005,185,000,194,
    153
157 DATA 000,006,185,232,194,153,232,
    006
158 DATA 200,208,229,096
159 :

1000 REM ** DEMONSTRATE WINDOWING
1010 PRINT"[UP]TO DEMONSTRATE
     WINDOWING,"
1020 PRINT"PRESS ANY KEY..."
1030 GET A$:IF A$=""THEN 1030
1040 SYS 828: REM SAVE THE SCREEN
1050 PRINT"[CLEAR,DOWN2]
     THIS IS PRINTED IN THE 'WINDOW'."
1060 PRINT"[DOWN]LIKE THE FIRST
     SCREEN, IT COULD"
1070 PRINT"CONTAIN ANYTHING AT ALL."
1080 PRINT"[DOWN]PRESS ANY KEY TO
     CLOSE THE 'WINDOW'"
1090 PRINT"AND RECALL THE ORIGINAL
     SCREEN..."
1100 GET A$:IF A$=""THEN 1100
1110 SYS 858:REM RECALL THE SCREEN
```

128 in 64 Mode: If you're using your 128 in 64 mode with commercial software, try all the 128 keys that are normally dead in 64 mode. With *Fleet System 2,* for example, the NO SCROLL key acts like RUN/STOP and switches to the menu. Other keys do different things, and on some software the numeric keypad may even be enabled.

Regardless of your software, the left mouse button or joystick fire button corresponds to F8 when the device is plugged into port 1. Joystick down corresponds to pressing the INSERT key, joystick right is equivalent to a cursor left, and joystick left is the same as pressing RETURN.

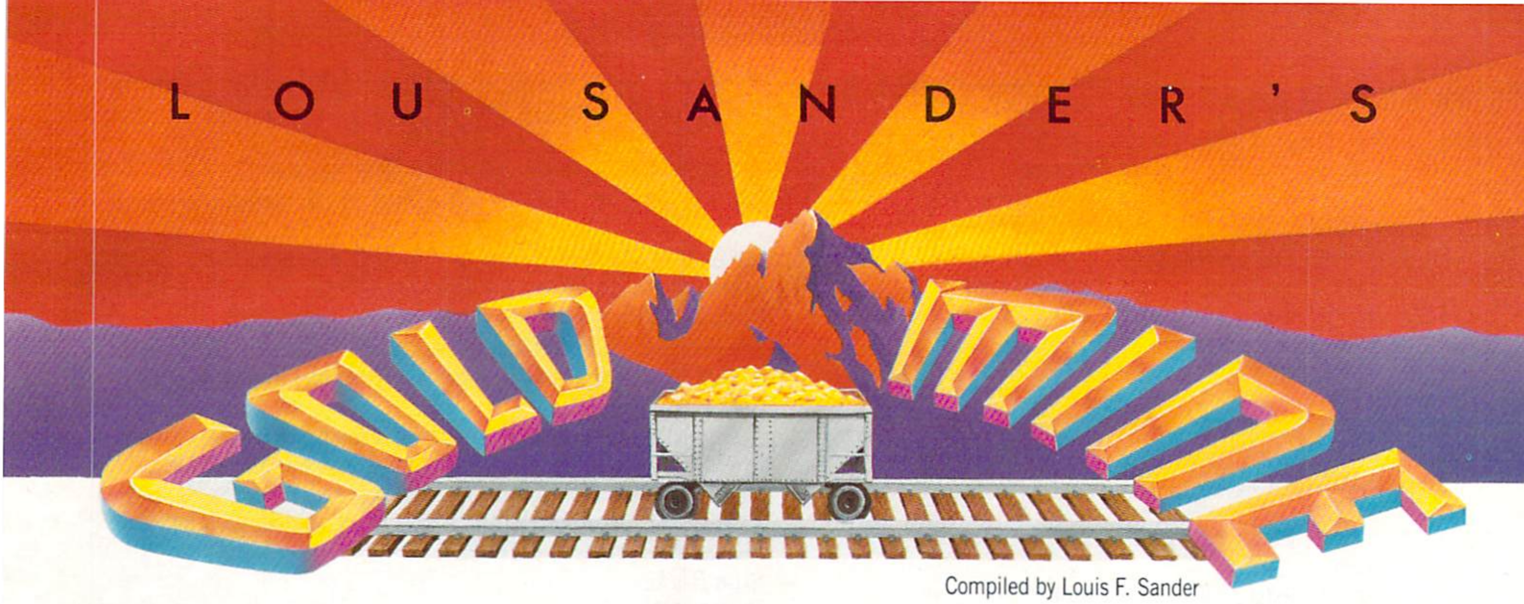
Sean Burke
Burton, OH

128 Screen Explosions: There are many different and interesting ways to simulate an explosion on a computer screen. The accompanying subroutine makes use of low-resolution graphics, drawing multicolored lines emanating from the center of the screen.

The routine is executed by setting variables L (length of line) and S (step angle between lines), then executing a GOSUB 10020. In our listing, line 110 does that for you automatically then repeats it in an endless loop.

Notice that the explosion has a different appearance each time the subroutine is called. Changing the values of L and S

Continued on page 108



Compiled by Louis F. Sander

Here's another month's worth of wonderful game tips for your Commodore computers. As an added bonus, many of these tips will work on Amiga, Atari, Apple or IBM versions of the software. Since such a large number of games are involved here, we have no way to test every tip that we get. And also, many of the tips involve skill as well as plain knowledge. So don't be too upset if everything you try doesn't work exactly as described. Send your own Gold Mine submissions to:

The Gold Mine
P.O. Box 101011
Pittsburgh, PA 15237

Use a separate sheet for each game, and combine all tips for one game onto one sheet. Please include your name and address on each page. And never forget for an instant — Gold Mine Rules!

Airborne Ranger: When you are instructed not to engage the enemy, always run towards the lakes or ditches. Rest in water or ditches, then run toward the next lake or ditch until you reach your target. When an enemy approaches, don't move unless you are fired upon.
Randy Brown
Evansville, IN

Bazooka Bill: Within a few seconds after you have lost all your men, press F5. This will allow you to continue.
Contributor Unknown

California Games: To get a high score in the Footbag event, do the Doda and Reverse Doda over and over again. You must keep the ball up and keep on repeating the process until time runs out.
Contributor Unknown

California Games: If you'd like over 60,000 points in Footbag, use two simple maneuvers—the Dizzy Dean and the Headbanger. Repeat them over and over, and by the end of your round you should accumulate around 20 of each. With practice you may make even more!
Joel Straus
Rough and Ready, CA

Championship Wrestling: When your opponent's energy is so low that he can't get up, avoid the temptation to pin him. Get about two steps away from him, and when he starts to get up give him a drop kick. Repeat the process until you are satisfied with the points you've accumulated. *Now* pin him!
Faber White
Little Rock, AR

Chuck Yeager's Advanced Flight Trainer: If you are having trouble loading this game, the problem is most likely with the heavy copy protection incorporated by the manufacturer. I could only get it to load part way before I was returned to the READY prompt. I called Electronic Arts and was told that their copy protection is so sensitive that the drive has to be in perfect alignment, and there can be no printer or cartridges attached to the system. A test on a friend's "bare bones" system confirmed this.

It appears that the program requires there be nothing attached to the serial bus other than a single disk drive. For those who have two drives, the solution is to unplug or turn off the second drive. *[In some copy protection schemes, you also have to remove the extra serial bus cables. LFS.]*
Jeff McKee
Rochester, NY

Defcon 2: When launch is detected, you can make disk flipping easier. Just list the OLR schedule and you can also find the GCL code, making it unnecessary to list the GCL schedule.

When you pick a sector to use the OLR, VRS it. When the boost phase is over, use the FEL, NPB and EML in the same sector you used the OLR in. This will save time in disk flipping, if you haven't destroyed all the missiles yet.
Gerry Tablada
New Carrollton, MD

F-15 Strike Eagle: As you near your target, arm your plane with the bomb. When your Air to Ground Reticle is about a half inch ahead of the target, start to drop one bomb after another. If the last bomb you drop hits the target, you will receive all the points for how many times you hit it.
Ryan Murano
Mammoth Lakes, CA

4th & Inches: When playing the Computer All-Pros, try using this play: Select Shotgun With Back, Post, Long Pass and select either left or right Tight End. When play starts, drop back and wait for the End you selected to get past the Middle Linebacker. Pass to him, and you'll usually gain 13 yards. This play isn't always available when selecting the Shotgun With Back option; the computer randomly selects the pass patterns.
Victor R. Heredia
El Paso, TX

Gauntlet: When you wait about 30 seconds without battle, all the doors will open. If you wait about 60 seconds without battle, all the walls will turn into exits.
Michael Baumgart
Sparks, NV

Ghostbusters: When asked for your name at the beginning of the game, enter OWEN and reply YES for having an account. Your account number will be LIST. You will have a balance of $720,000 instead of $10,000.
Danny Correia
Saint John, New Brunswick, Canada

Gunship: When your engines go out, immediately disengage main rotors from engines and get up to 90 to 100 knots. When you are 60 feet off the ground, pull back the stick to land.
Shea Gardner
Address Unknown

Hacker II Hack: If you have a track and sector editor, you can find all of the filing cabinet codes and the vault combination by looking on track 15, sector 19. Look in this area some more, because there are more hints on the disk.
Contributor Unknown

Hardball: When you throw a pitch outside the strike zone, the catcher's glove follows the joystick's motion, revealing to the batter where the ball is going to go. To prevent this from happening, simply choose the direction you're going to throw the ball before the batter chooses to bunt or steal.
Joel Leveille
New Liskeard, Ontario, Canada

Hardball: It helps when you bat to keep the bat level. Don't swing high, low, in or out—just push the fire button, which will allow the batter to swing down the middle. Also, wait until the pitch comes down the middle. You'll then have the best chance to knock it over the fence.
Victor R. Heredia
El Paso, TX

Jeopardy: The middle man can use the button on joystick 1 to buzz with. This is easier and quicker than using the space bar.
Contributor Unknown

Karate Champ: Stand still and let the computer approach you. When he gets close enough, do a jumping side kick, which he will block. As soon as you land in front of him, do a front kick. He will still be blocking the jumping side kick, and you will nail him in the stomach.
Aaron Schnuth
Swanton, OH

Continued on page 126

Reviewed by Russ Ceccola

Skyfox II

Computer: Commodore 64
Publisher: Electronic Arts
1820 Gateway Drive
San Mateo, CA 94404
Medium: Disk
Price: $29.95

In the 1984 hit *Skyfox,* you commanded an advanced warplane against enemy plane and tank attacks on your colony's installations. The ultimate goal was to destroy the motherships that were spawning the enemy forces. In *Skyfox II* you take control of a newer version of that warplane from the past, suited for outer space travel and combat and commonly known as a warp fighter. After the enemy attacks in *Skyfox,* the Terran Federation contained the Xenomorphs in their home star system, Cygnus. Now the Xenomorphs are attacking the starbases of the Federation Star Guard in Cygnus, the only force keeping them from gaining their former status. You must fly your warp fighter in various missions as the sole Warpwarrior available to defeat the Xenomorphs.

Skyfox II is actually easier to play than the original game. I picked up the mechanics of the game a lot quicker than I did in *Skyfox*. And there is a lot more to do in *Skyfox II*. Each of the ten missions is almost like a completely new game. The team who designed *Skyfox II,* Dynamix, are the same people who brought *Arcticfox* to the home gaming world.

The *Skyfox II* warp fighter is a lot more responsive than the original warplane. The neutron disruptors will be the weapon you use the most in the game. Equivalent to standard lasers in most games of this type, you use them to shoot towards a target ring in the center of the heads up display (HUD). By moving enemy ships and asteroids into the target ring, you decimate them with the neutron disruptors. The fire button on the joystick activates the disruptors, and the space bar fires the photon pulse bombs. These bombs are the best way to destroy enemy starbases and larger asteroids. Finally, the "M" key lays an anti-matter mine behind your warp fighter that explodes when they hit an enemy or run out their timer.

That's about the extent of your weaponry. However, you also have shields and a deceptor device. The shield level meter



drops whenever you get hit by enemy fire, ships or asteroids. It begins to climb up again after the hit, so if you manage to leave some time before getting hit again, the new attack won't cause irreparable damage. If the shield level drops to nil, then you sustain damage that can occur in any of seven places: neutron disruptors, deceptor device, photon tubes, scan monitor, kps (kilometers per second) indicator, HUD and FTLC (Faster Than Light Communication). The key to keeping damage minimal is to avoid everything immediately after a hit is scored by the enemy.

The deceptor device aids you in this endeavor by making you invisible to enemy radar and sight until you get through an especially dangerous enemy area or let your shield strength go back to normal. Unfortunately, the deceptor device drains energy quickly and is temporarily disengaged when firing weapons. So use it only when absolutely necessary.

With all of these defensive and offensive aids, you'd think that your missions would be easy. In *Skyfox,* if you kept your head on straight you could win by traveling quickly from sector to sector. But there were too many tanks and planes for one person to handle in the more populated scenarios. In *Skyfox II* just the opposite is true. In most cases, there are not a lot of enemy ships—they are just spread out over a wider territory, making it imperative that you think out your strategy before speeding across space from one location to another. Although it is easier to control your warp fighter than the warplane of *Skyfox,* you must use all of the brain power you can muster to control your fighter in actual combat maneuvers.

Your mission is viewed from within the cockpit of the warp fighter. The game screen is two-thirds the surrounding sector in outer space and one-third control indicators. There are three level meters (damage, shield and energy), photon bomb and anti-matter mine counters, the HUD target ring, an FTLC warning indicator for urgent messages, an autopilot indicator and target identifier. The target identifier shows the closest vehicle to your fighter according to the radar. Colors are used to indicate alliances too, with green for Federation vehicles, blue for Xenomorph ones and purple for Third World ships and bases. Watch this identifier carefully!

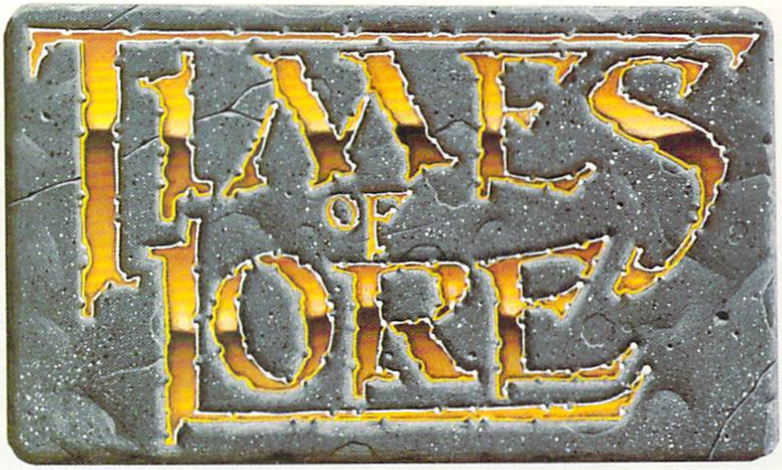
You also see your speed in kps on the screen, location in X-Y coordinates in Cygnus (optional) and a scan monitor—the most important indicator in your fighter. This scanner shows everything surrounding your fighter, using colored dots to distinguish between vehicles, bases and wormholes. You can use this radar scanner in three modes: long, medium and short. The F3, F5 and F7 keys, respectively, switch the mode of viewing the surrounding sector. F1 toggles fore and aft views.

In *Skyfox II,* navigating from location to location is facilitated by the better developed speed control and overview map. Each single digit, when pressed, changes the speed of your warp fighter to that number of thousands of kps. In *Skyfox,* each digit key represented a percentage of the maximum speed. Thankfully, the designers replaced that system. The overview map that pops up allows you to select with the joystick a destination point in Cygnus for the autopilot to guide your fighter toward. The map indicates with colored dots all of the starbases in Cygnus, which helps a lot in completing your mission. Then you simply set a speed, and off you go at that speed to your destination.

The only complaint I have about *Skyfox II* is the inclusion of asteroids in the game just about everywhere you turn. There is a large field called Asteroid Alley between your collection of starbases and the Xenomorphs' that can prematurely end a game in a matter of seconds. To get around having to go through the asteroid fields every time you move, Dynamix included wormholes in the game. Wormholes appear on the HUD and radar scanner as red dots. Each hole is like a transporter in that it has a twin hole in another part of Cygnus. If you make a list of these twins, you'll find a much easier way to navigate Cygnus.

Playing *Skyfox II* involves selecting a

Continued on page 91



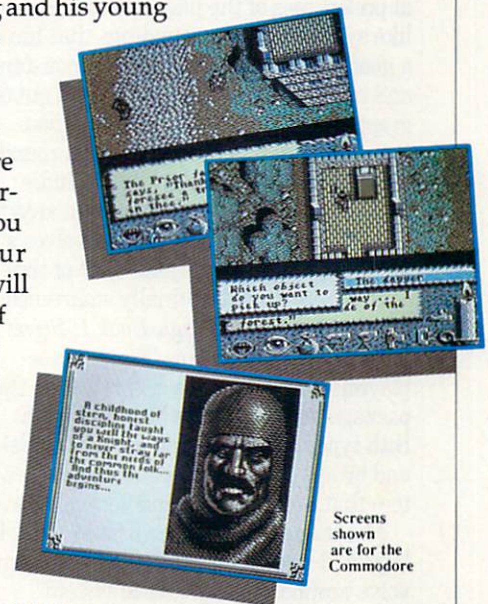
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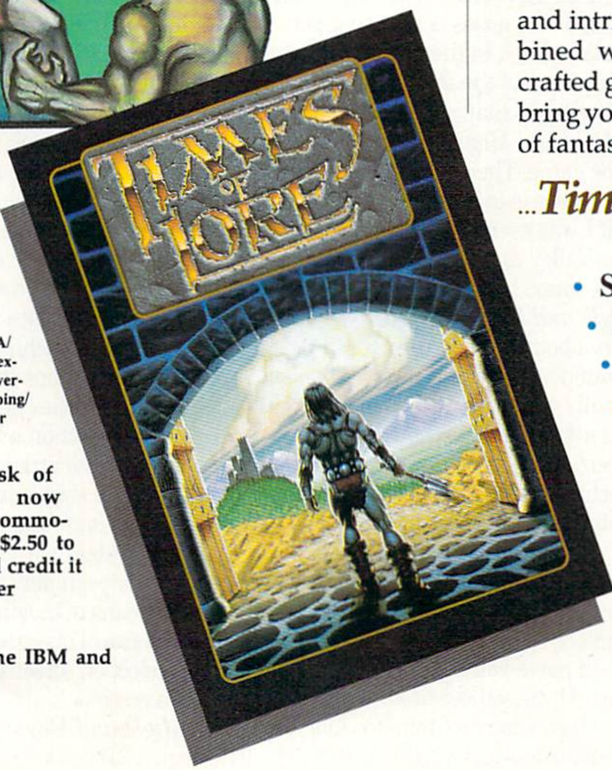
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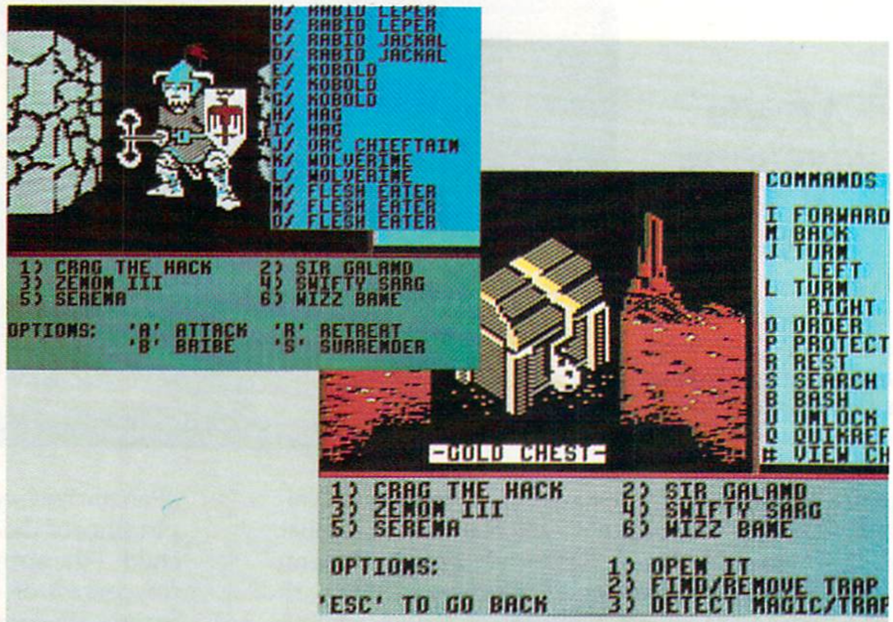
ORIGIN

Origin Systems, Inc.
136 Harvey Road, Building B., Londonderry, NH, 03053

Reviewed by Russ Ceccola

Might and Magic

Computer: Commodore 64
Publisher: New World Computing, Inc.
P.O. Box 2068
Van Nuys, CA 91404
Medium: Disk
Price: $39.95



This "fantasy role-playing simulation," combines the best elements from both types of role-playing games in a system that is easy to use and very addictive.

There are so many role-playing adventure games in any given software store that it is difficult to decide on one to tackle. It really depends upon the personal preferences of the player. Some people like symmetrical surroundings that have a good assortment of dungeons, monsters and treasures and must be mapped out on graph paper. Others like those *Ultima*-types that have many possible commands, asymmetrical geography that includes many continents and an immense area to cover. The latter type usually involves a fairly large quest and takes a lot of time.

Now somebody has finally smartened up with *Might and Magic Book 1: Secret of the Inner Sanctum*. This "fantasy role-playing simulation," as it is called on the package, takes the best elements from both types of role-playing games (RPGs) and brings them together in a game system that is easy to use and very addictive.

Might and Magic is the first in what I hope will be a long series of games that revolve around the same basic system. There are many elements of *Might and Magic* that make it uniquely attractive to the role-playing aficionado. First, finishing the game takes a long while. You really get your money's worth with this quest. There is a lot to do and no set amount of time in which you have to get it done.

One factor that makes the game such a lengthy endeavor is the large area that you must cover in *Might and Magic*. Your goal in *Book 1: Secret of the Inner Sanctum* is to find out where the Inner Sanctum is and then determine its purpose. You do this is by undertaking quests within the game to get more knowledge of your surroundings and to get clues to the Inner Sanctum's location. You travel through the Land of Varn, which consists of many islands, glaciers, forests, valleys, groves, hills, dungeons, towns, castles, a swamp, a sea and a desert. Most of these geographic locations are above ground, and there are many more places to see underneath the surface. To aid you in your travels through Varn, a colorful map comes with the game that uses a coordinate system to divide the play area into blocks. The map is left trailing off at the edges, a sign that perhaps another Book in the series will take place at an edge of the *Book 1* map.

The first thing that will strike you about *Might and Magic* is the immense size of the game. There are so many different types of areas to cover that I wondered at first if I was ever going to get beyond Pleasant Valley and the town of Sorpigal, where the game begins. Because of the way *Might and Magic* is set up, you need not worry about keeping the overall picture in mind at all times. You will happen upon small quests that will keep you occupied and allow you to become familiar with a certain area of Varn and with the play mechanics that are involved in different combat and exploration environments.

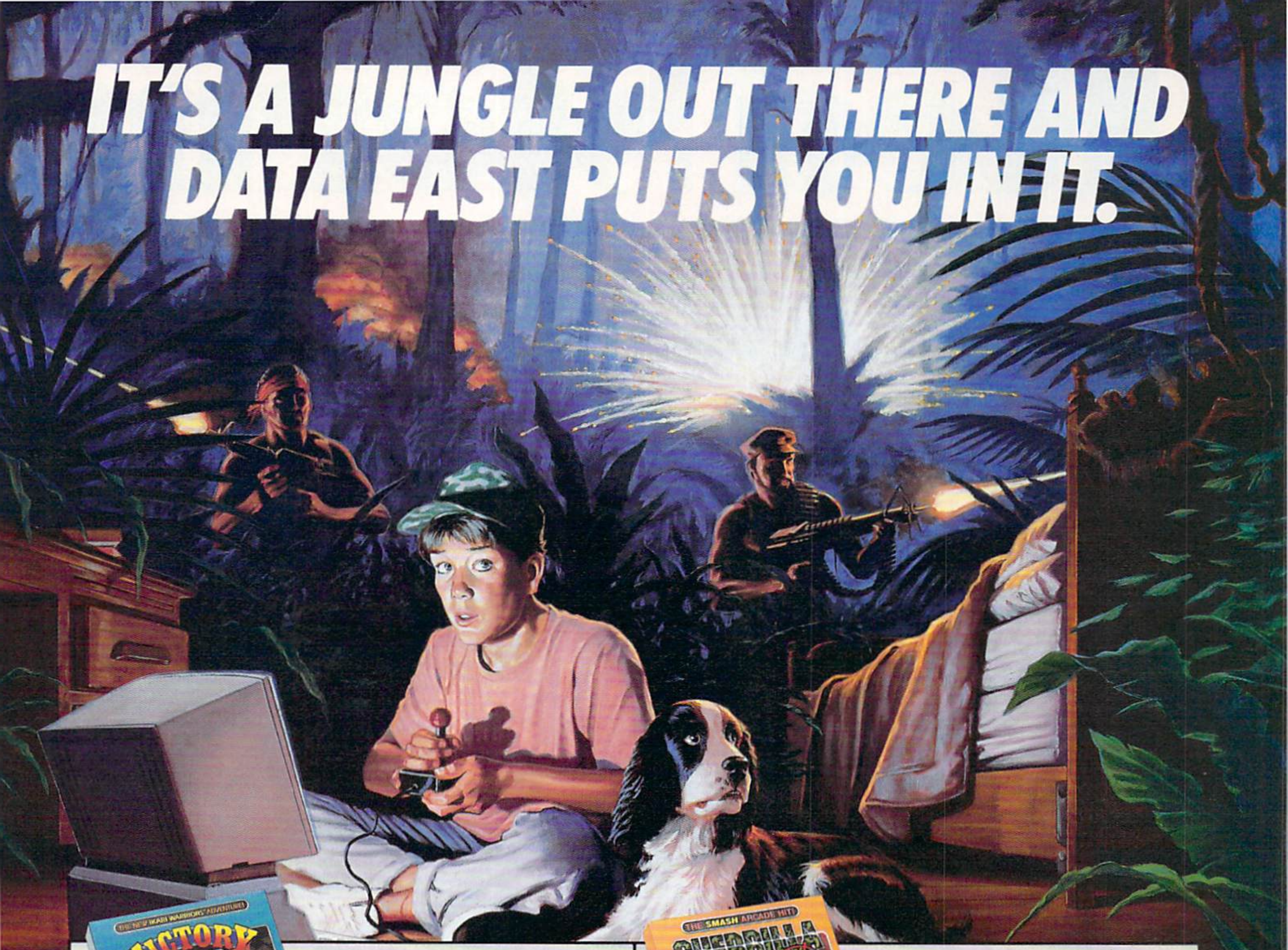
The first thing you should do is take each step very slowly until you realize all of the options at your disposal. Think about each move you make and decision you enact. Until you get used to the game system (which shouldn't take too long at all—one hour tops!), don't think about going beyond the boundaries of your immediate vicinity. The game starts out in Sorpigal, and there are places from which you can go into natural caverns and the outside world. Look at every shop and location in the town before you go into the cavern or outside areas. By simply moving around, you will automatically learn the options at any point in the game because they are staring you in the face on the screen.

One thing that took role-playing games a step further into the future a couple of years ago was the inclusion of all of the commands on the screen with the letter needed to activate the command highlighted or set apart in some manner. *Might and Magic* does the same thing—play consists of touching a number of keys to invoke the actions the commands imply. The game relies heavily on the use of menus and selection screens to travel through the adventure. Using these menus is very simple and a big plus in favor of *Might and Magic*. I have not seen an easier system for playing an RPG. It is easy for the beginner to pick up and provides a means of moving quickly for the RPG veteran. This ease extends from the initial selection screens all the way to the end of a session.

In *Might and Magic* you move in steps through a 3D perspective à la *Bard's Tale*. One gripe that you might have with this

Continued on page 105

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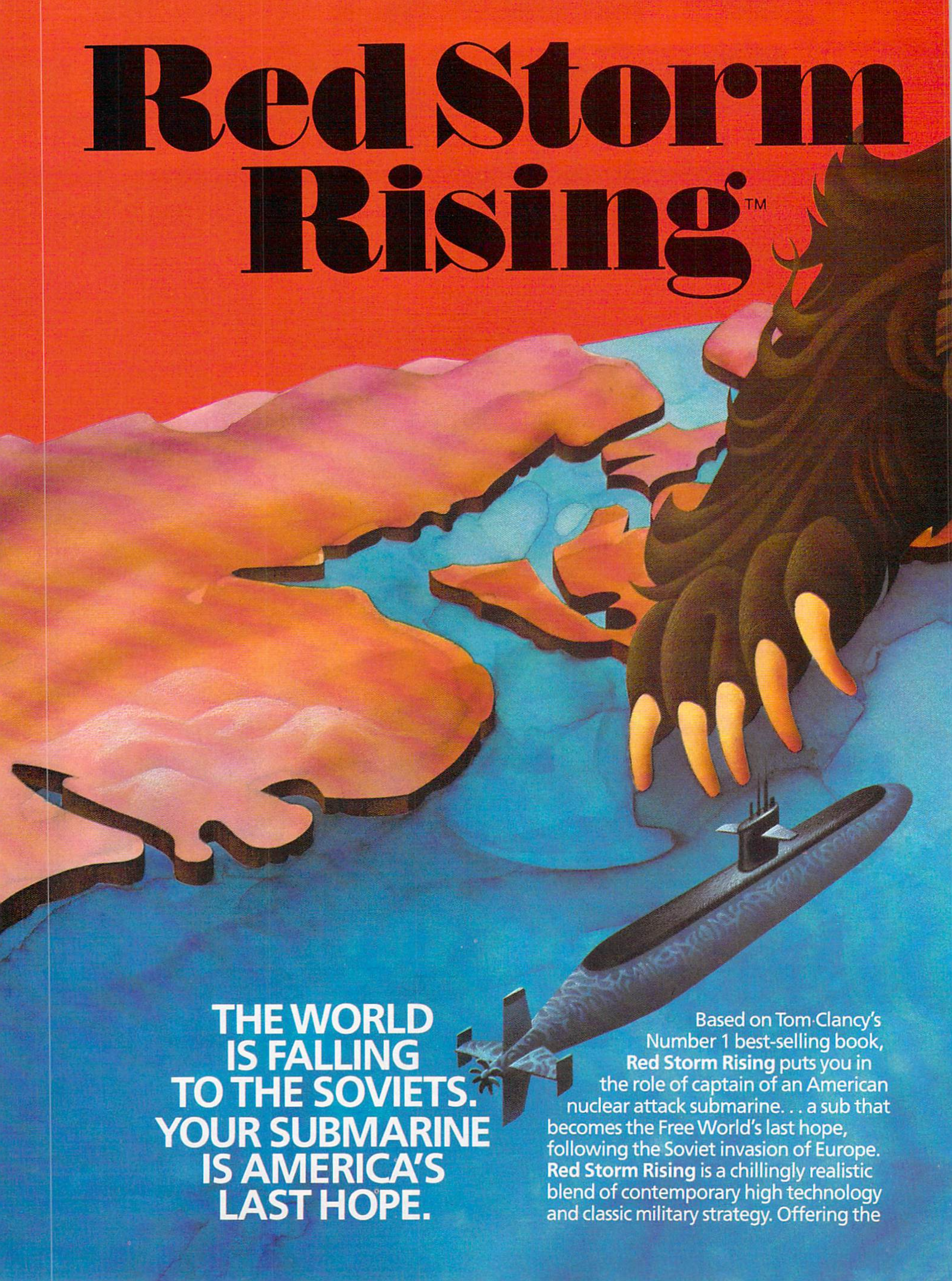
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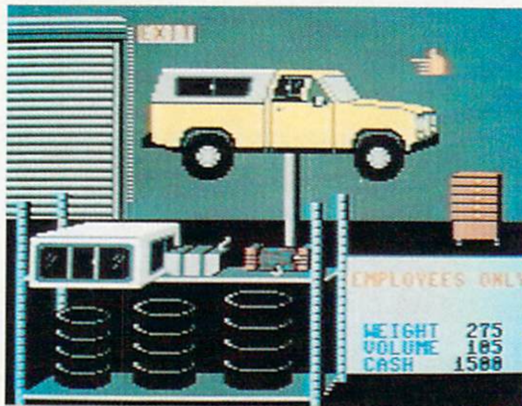

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Reviewed by Scott A. May

4 × 4 Off-Road Racing

Computer: Commodore 64
Publisher: Epyx, Inc.
600 Galveston Drive
Redwood City, CA 94063
Medium: Disk
Price: $39.95





The most interesting feature of the game is the wide variety of random terrain hazards.

So you've had enough of pavement? Those little white lines getting you down? There are no such luxuries in Epyx's *4 × 4 Off-Road Racing*. After a few hundred miles of eating sand, snow, ice and boulders, you'll be begging for anything smooth and flat. Here's mud in your eye!

This one-player contest begins with course selection and skill level. There are four different terrains to choose from. Each course offers a test of skill and endurance unique to the region.

The Baja race features 1000 miles of unforgiving treacherous dry lake beds and rock-strewn mountain plateaus. Prepare for the worst if you enter this one.

Death Valley's searing heat is unfit for man or beast. Just ask those skeletons you meet along the way. Are you *sure* you want to race here? Just ignore those buzzards circling overhead.

You'll appreciate dry climate if you enter the Georgia race. Mud, mud and more mud. Everywhere. You'll need more than hip boots to make it through this one.

Finally, you haven't lived until you race in Michigan in the dead of winter. If a little sub-zero temperature doesn't faze you, try adding generous amounts of ice, snow and mud. Who's smiling now?

There are also four skill levels available for each course: beginner, amateur, semi-pro and professional. Skill levels help determine how well your truck stands up under harsh conditions. Beginner and amateur levels are recommended for younger players. The fun begins at semi-pro and gets out of hand when you reach professional status.

Next comes basic truck selection. There are four models to choose from: the Stormtrooper, Tarantula, Highlander and Katana. Each is rated for power, weight, gas mileage, endurance, ease of repair, payload volume (with and without camper top), and fuel capacity. Cycle through the selections until you find the right truck to match your particular needs.

The British Highlander rates highest on almost every attribute, followed closely by the American-made Stormtrooper. The Katana and Tarantula achieve the greatest gas mileage, but have smaller fuel tanks. Larger size means a greater payload, but also more weight and less speed. Higher horsepower equals lower gas mileage. Players will find there is always a trade-off—no truck is perfect for every race.

The last few steps before a race involve trips to the Custom Shop and Auto Mart stores. Here you can outfit your stock rig from bumper to bumper. Once again, smart shoppers will take into consideration the course terrain, skill level and truck model.

The Custom Shop carries items such as an extra fuel tank, an electric winch, camper shells and tires (standard, mudder and all-terrain). The winch is a must-have item for any course where moisture is a problem. A camper shell increases payload capacity (it nearly doubles the space on the Tarantula, for example), while an extra fuel tank can be reassuring on the long haul. Keep in mind, however, that you are given only $2000 to spend, and we have one more stop to make.

The Auto Mart is next, with all sorts of valuable goodies. Watch your truck's weight and volume, while the store clerk minds your wallet. You might as well spend it all, but spread it around wisely. Think of a worst-case scenario for the race you're about to drive (terrain, weather, obstacles) and buy accordingly.

Items of interest here include: water, oil, coolant, transmission fluid, batteries, spare parts, gas, maps, flashlights and tools. Drivers may also buy the services of a trained mechanic, but such luxuries can be expensive. The Auto Mart also offers six-packs (of beer, I imagine), a dubious accessory that does little for the integrity of off-road racing. Some stereotypes are hard to shake.

When you are satisfied with your purchases—refunds are available if you get carried away—hop inside and head for the starting line.

At the drop of the green flag, the race begins. As one of 16 contenders, you must play it smart to capture the lead and hold it to the end. Your current status appears at the bottom of the screen as you approach other vehicles. Some will move to the side and allow you to pass, while others cling desperately to their lead.

Somewhere in the great unknown is a deadly black menace known as the Doombuggy. This road warrior will do anything he can to destroy your rig—smashing, bumping and grinding you off the road. Even if you manage to pass him, keep in mind that he's back there somewhere, ready to ram you from behind. This guy has serious problems.

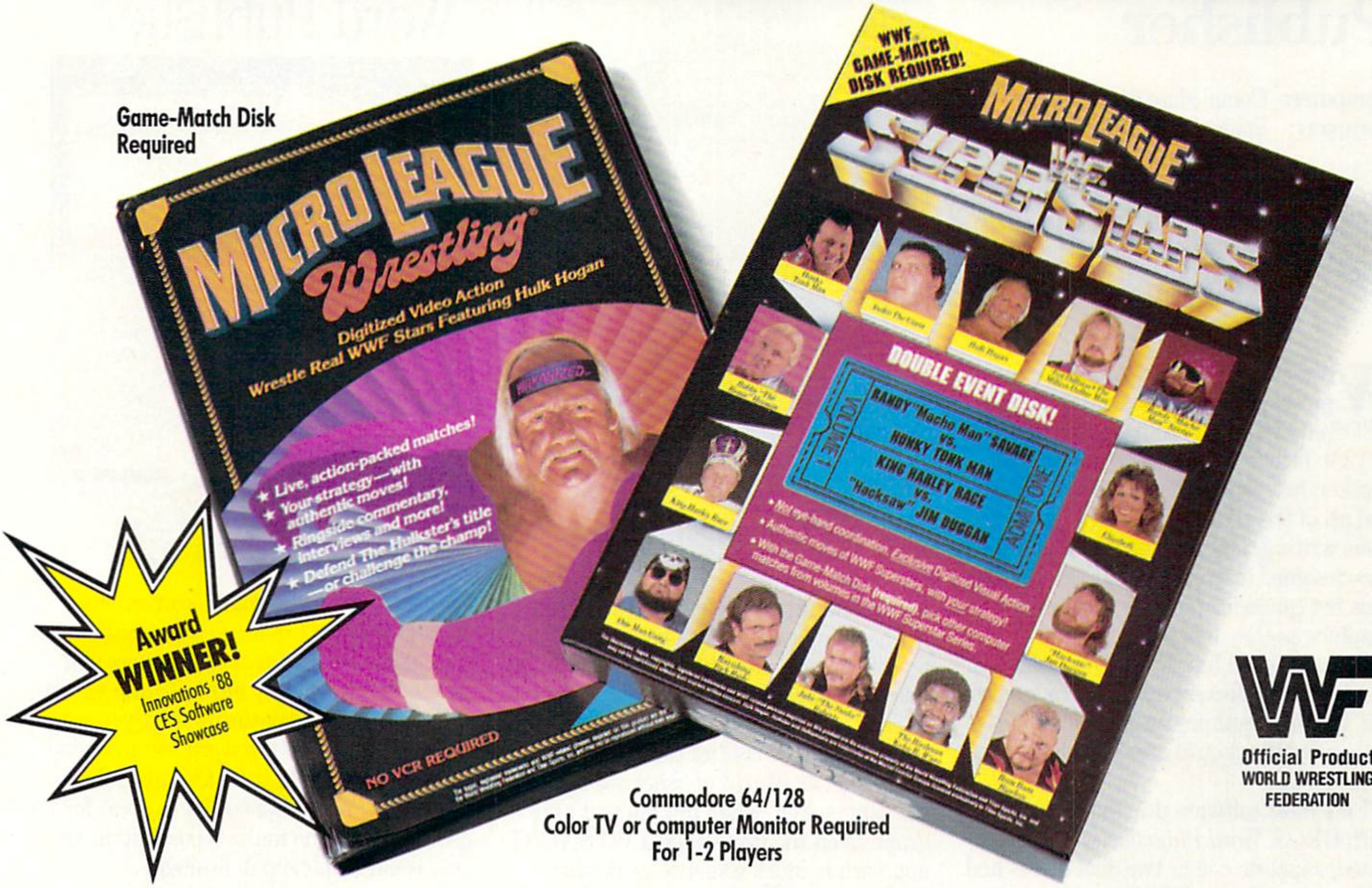
Driving your truck is a simple matter of pressing the fire button to accelerate and moving the joystick left or right to steer.

Continued on page 91

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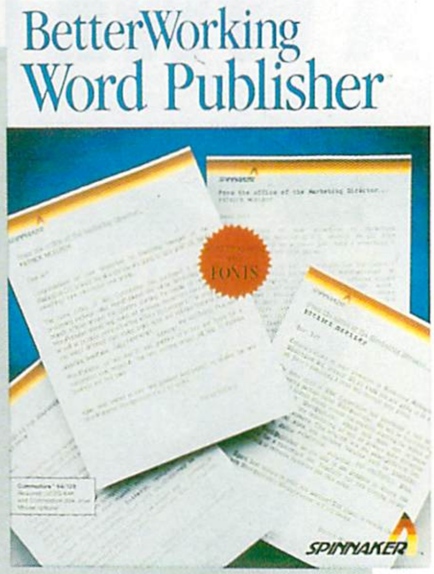
Visit us at Booth 419, November World of Commodore

Reviewed by Gary V. Fields

Word Publisher

Computer: Commodore 64
Company: Spinnaker Software
One Kendall Square
Cambridge, MA 02139
Medium: Disk (GEOS 64 or 128 required)
Price: $39.95

Regardless of whether you are a heavy or occasional user—*Word Publisher*'s commands are easy to handle.



Word Publisher is an impressive word processor which runs within the GEOS environment (with either GEOS 64 or 128). It includes a 100,000-word spell checker, full-page pre-print review screen and all of the editing tools required for serious writing. Unlike other word processors designed to work with GEOS, this one does not constantly display fonts and graphics as they will print. Instead it uses more traditional formatting symbols. The result is a quick-responding, memory-saving, flexible word processor which takes a little more thought to use, but which gives great results.

Like most software designed to work with GEOS, *Word Publisher* is icon activated, supports one or two disk drives and will work with any GEOS-supported input device (mouse, joystick, light pen, keyboard). The work screen (40-column screen regardless of whether using GEOS 64 or 128) uses an option row which when activated opens other windows of options. This friendly and sensible interface design allows even the newest computer user to quickly master *Word Publisher*. The program's editing tools include: cut, paste, copy, justifications, multiple fonts, headers and footers, super and subscripts, text styles, etc.

But unlike most GEOS applications, graphics here are defined in terms of overlays. Rather than displaying graphics and special fonts constantly, information is entered telling where the graphics and font changes will appear when the page is printed. The actual image is not displayed until you either select preview or dump the document to your printer. Why this approach, you are probably asking? Wouldn't it make more sense to use the traditional What-You-See-Is-What-You-Get display screen? The programmers at Spinnaker gambled that serious users would prefer more speed and free memory over constantly displayed graphics.

I have mixed feelings about this approach: on one side I like the ability to quickly enter and edit text, and I've worked with professional word processors which displayed control commands on the screen just as *Word Publisher* does. But by the same token, when mixing text and graphics on the same page a WYSIWYG approach is much easier to work with. Some users will find Spinnaker's compromise delightful, others will find it workable but will resent not seeing the actual display at all times.

The program's 100,000-word spell list is located on the back side of the master disk, but because *Word Publisher* is not copy protected you can (and should) duplicate it onto a separate disk. To activate the speller you just pull down the EDIT menu and select "spelling check." The program prompts you to insert the spell disk (if you have two drives you can put the program disk in one and the speller in the other) and then begins comparing the words in your document against those in its dictionary. Spinnaker takes some pride in the checker's speed and justifiably so—compared to some disk-based spell checkers *Word Publisher*'s is a whiz.

But the speller lacks one of the options I insist upon—correction help. Once an unrecognized word is found the checker pauses to allow you to either ignore the word or manually correct it. That's fine if you know how to spell the word, but what I need is a speller which will list correctly spelled words which are similar to the one I misspelled, so I can make corrections without resorting to using a conventional dictionary. The better spell checkers will let you do just that by either listing words with similar letter patterns or let you scan the spelling list for the word you intended and then substitute it for the misspelled one. *Word Publisher*'s speller is great for good spellers who make typos, but for us poor spellers its help is limited.

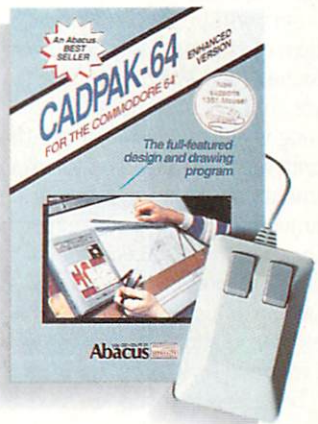
The program provides three viewing options. (1) The standard input screen displays as many as 80 characters and shows control symbols (bold, italic, superscript) instead of the actual way the document will print. (2) The View option displays the document including graphics and special font styles exactly as they will be dumped to a printer. This view is preferred, since it lets you examine detail and make adjustments until your document is exactly what you want. The only problem here is you have to scroll left and right to see the entire width of the document. But because of the way *Word Publisher* manages memory, scrolling to any point on the page is almost instantaneous. Those who have been frustrated by the slow scroll action of programs like *geoWrite 64* or *geoPaint 64* will be delighted with the improved speed here. (3) The last view option is called Preview. When it is selected, the contents of the document are displayed on the right side of the screen in perfect proportion to a sheet of paper. This one lets you view the entire page, including graphics. But because the type is so small in

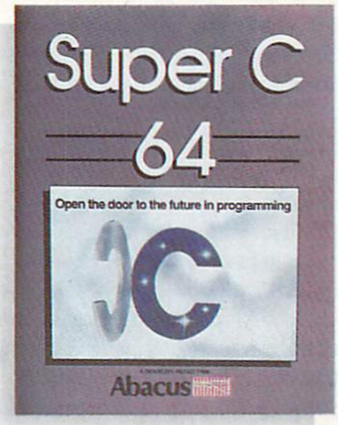
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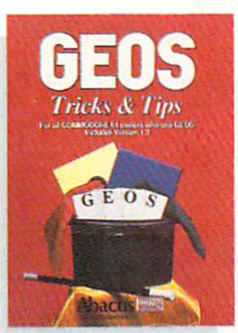


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Continued from page 28

this mode, its main value is to show you how the document's graphics and text balance, if margins are correct, etc.

Both View and Preview modes allow you to quickly flip pages (to get to the one you are currently editing) by pressing the F1 key or abort the option by pressing RUN/STOP. I applaud this quick exit routine. I'm sure I'm not the only person who has become a prisoner of poorly designed software which locks the user out of the system during lengthy computation. (I must confess that I've been the author of some poorly designed software like that myself.) *Word Publisher*'s sensible design goes beyond just letting you enter and edit text quickly, it lets you abort mistakes quickly too. All the word processor's options can be selected by pulling down a menu (using a mouse or joystick) or directly from keyboard input (the COMMODORE key plus another key). As an example: To change from plain text to boldface, you can either activate the option from the pull-down menu or just press the COMMODORE key and the letter "B."

Thankfully, the programmers used common sense when selecting hot keys too: "I" for italic, "U" for underline, "N" for normal type, "C" for cut, "P" for paste, etc. For those of us who are sometimes forgetful (or just prefer not to memorize) there are help screens which display all those hot key combinations. After using the program for a while, I suspect most serious users will prefer the keyboard input because they can be accessed without ever taking your hands from the keyboard, but new users will prefer the menus. So regardless of whether you are a heavy or occasional user—*Word Publisher*'s commands are easy to handle.

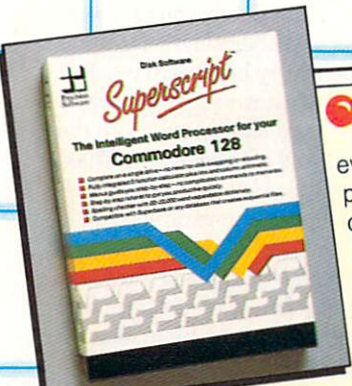
Along with the menu bar are three other windows. One displays the name of the document you are editing, another shows the amount of free memory, plus the page number. The final window alerts you to special attributes of the area under your cursor like font changes, text style, graphics, etc. For instance, when you enter an area which is styled boldface, the widow lists "bold." Note: If you are a GEOS 128 user, you'll be happy to know all the numeric keyboard and four directional keys are active while using *Word Publisher.*

The last thing I'll mention is the multiple printing options included. First the program comes with an impressive array of printer drivers, so if you've had trouble finding the driver to match your printer elsewhere you will probably find it here. Once print is selected you can print using three different modes: fast, draft and quality. The "fast" print option strips all the special text attributes from a document leaving only words. This is useful when you need hard copy of the text in a hurry to either show to an editor or take to another location. This is the fastest way to get text out of the system. If you wish, fast mode will also include symbols or notes indicating where text styles change or graphics will be included in the final printout.

The draft print mode is not as fast, but it does translate everything accurately from screen to paper. To conserve time and your printer's ribbon, the print head only passes over the paper one time. Thus you get an accurate but light hard copy of the document. Quality mode, as the name suggest, delivers the best printout possible. Everything is perfectly printed; the print head double strikes everything for good dark images.

Word Publisher comes with a tiny, 32-page manual, but because the program is so logically designed, anyone familiar with GEOS software will have little need to read it. If you are a GEOS 64 or 128 user in need of a good, fast word processor, this is one to consider. ■

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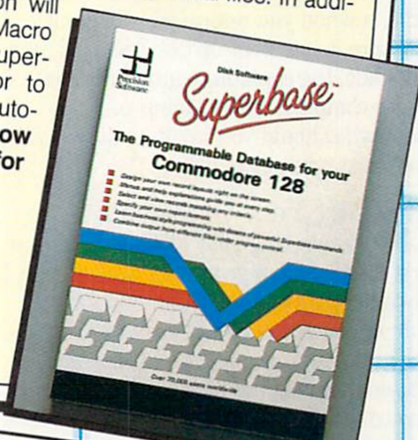
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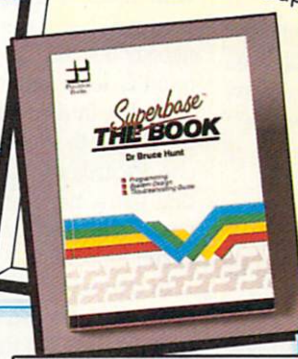
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Reviewed by Jeffery Scott Hall

Card Sharks

Computer: Commodore 64
Publisher: Accolade
550 S. Winchester Blvd.
San Jose, CA 95128
Medium: Disk
Price: $29.95

One boring evening you are sitting around your house wondering what to do. How about playing some cards? You decide to call up some of your friends to see what they are doing, unfortunately all have other plans. Playing solitaire by yourself is no fun, so what should you do? That is when you realize what a great pleasure it is to boot-up *Card Sharks* from Accolade, the computer card game that comes complete with playing partners. Now, who should you invite to play cards and what game to play?

Choosing Your Opponents

Before selecting your players, you must first decide which game you want to play: Poker, Hearts or Blackjack. Choosing your opponents is not an easy task, for each man and woman has his/her own personality ranging from nerdie to totally obnoxious. You will find six people to select from, each graphically displayed on the screen. To choose your opponent, highlight the person you want and press the fire button.

You will then be able to choose where you want the person to sit at the table (i.e., left, right or middle). The number of players you must select depends upon which game you want to play. Once you have selected your opponent(s), you will find them seated in the positions you put them in the game which you are playing.

So, what makes this unique? First, and perhaps the best, are their personalities. The comments they make while playing can insult you or just kill you with kindness. The second unique feature is their facial expressions when dealing, playing against you, etc. These features make you feel like you actually have players in the same room with you, instead of microchips playing against you.

To select from any menu in the game, simply highlight your choice and press the fire button. So just how good are you at playing cards?

Poker

Now that you have chosen to play poker, you must choose which version



Choosing your opponents is not an easy task, for each man and woman has his/her own personality ranging from nerdie to obnoxious.

you would like to play. Your choices are: "5 draw," "7 stud" or "Hold 'Em." Any of these variations of poker may be played at either a slow (indicated by an "S" in the lower-right portion of the game table) or fast rate (by pressing the RUN/STOP key). This will allow both beginner and expert players to select their desired speed/complexity.

In "Five Card Draw" (5 draw) each player is dealt five cards face down. Starting at the dealer's left, the first player with a pair of jacks or better can (not required) begin the first betting round. If nobody bets or has jacks or better, a new hand is dealt and everyone antes again. After the first round of bets, starting with the player to the left of the dealer, everyone discards zero to four cards and is dealt that many new cards. The final betting round is started by the player who opened in the first round.

In "Seven Card Stud" (7 stud) each player is dealt two cards down and one card face up. The first round of bets begins with the person showing the highest card. That person must bet $5 or fold his hand, and every other person must do the same. The next three deals will be face up, with each betting round beginning with the person with the best cards showing. Each player is then dealt the last card face down.

When playing "Texas Hold 'Em" each player will be dealt two cards face down. Starting at the dealer's left, any player may start a betting round, and must bet $5 or fold. Three cards are dealt face up to the center of the playing table, this is called a Flop. The second betting round starts at the dealer's left with everyone using the cards in the middle of the table to determine their best hand. Two more rounds are then played, and betting begins at dealer's left.

Hearts

The game of Hearts is a combination of skill and luck. You will have no partners, and it's everyone for themselves. Hearts is a game in which every heart card in a suit counts "minus" when won in tricks. This is the reverse of most card games, with the object being to avoid getting hearts. There are several variations of this family game. *Card Sharks* employs the variation called "Black Lady." In this version, the object is to avoid getting both hearts and the queen of spades. Like all family card games the rules differ slightly from house to house. Accolade employs its own house rules, which are too lengthy to discuss here. However, I will say that the rules they follow are very common and use good features.

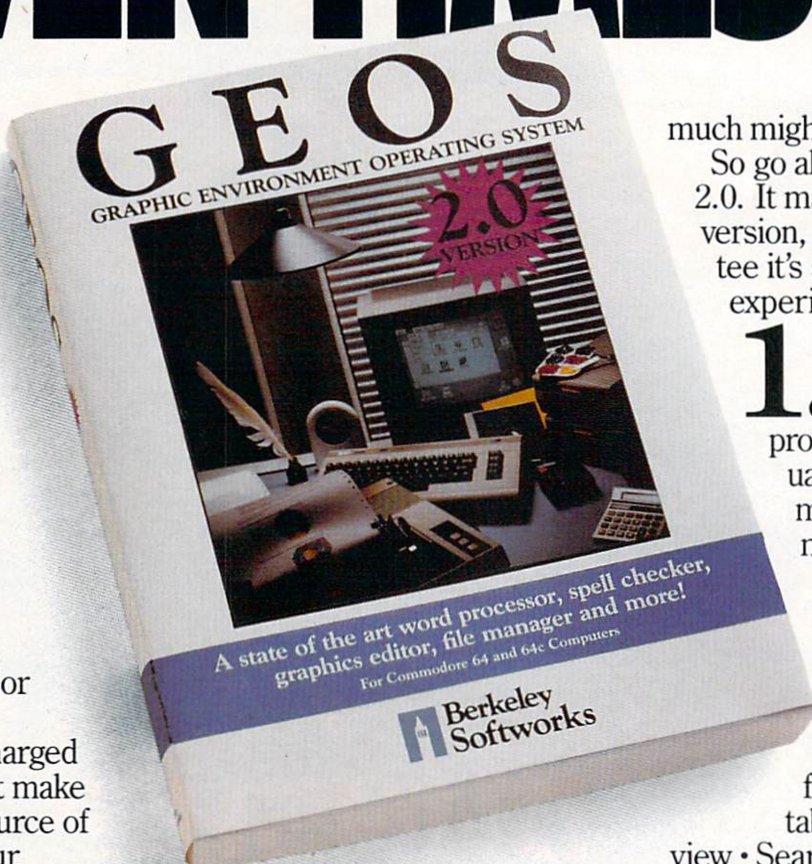
Blackjack

Oh yes, Blackjack, which just so happens to be my personal favorite of all card games, is also implemented in *Card Sharks*. The object of Blackjack is to come as close to a total of 21 as possible without going over. This might seem relatively simple to one who has never played the game before, but others know of its true test of skill (quiet, don't let them know it's mostly luck). You can be dealt as many cards as you want, until you think you should stop or bust. As with poker, you can play with either the slow or fast options (see above), allowing for more competitive play. In *Card Sharks,* the standard Blackjack rules are supported, so I will not bother describing them here.

Summary

Even though I did not explain in great detail how each game is played, the manual gives complete rules for every game and variation. This program gives you a good feeling of actually playing cards with others, as it follows the rules of card playing in "real life." *Card Sharks* has good graphics, sounds and realistic features to make it a hit with anyone interested in cards. If you are looking for a computer partner for playing cards, then you need to look no farther. ■

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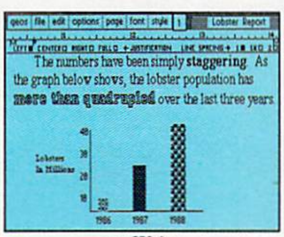
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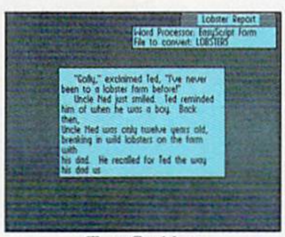
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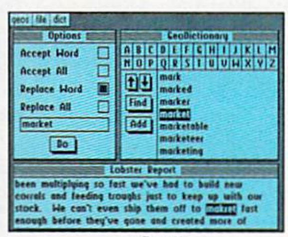
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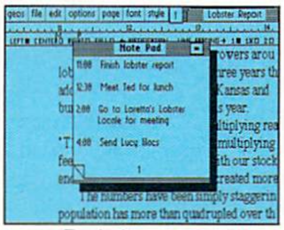
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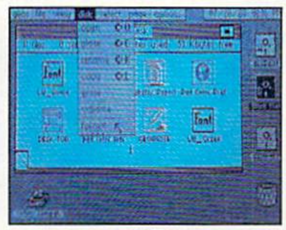
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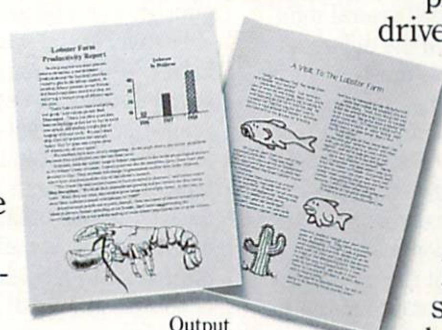


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Reviewed by Jeff Seiken

Bismarck

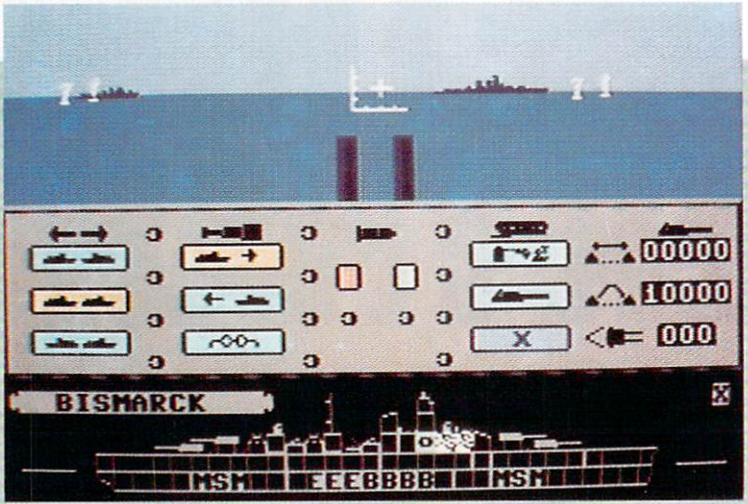
Computer: Commodore 64
Publisher: Datasoft
19808 Nordhoff Place
Chatsworth, CA 91311
Medium: Disk
Price: $30.00

On the computer gaming spectrum, *Bismarck* falls somewhere between the traditional war game and the shoot-'em-up arcade game. Neither strictly one nor the other, *Bismarck* mixes elements of both types. This gives you something of a hybrid, a package that provides the mental challenge of a war game with the fast-action thrills of an arcade game.

Bismarck recreates the pursuit of the German super-battleship Bismarck during the early days of World War II. Playable in solitaire fashion only, the game offers you a choice of roles: either that of the hunter, the commander of the British fleet, or the hunted, the captain of the Bismarck. In addition to the standard scenario, *Bismarck* also includes several mini-games focusing solely on the different combat sequences. These practice battles depict a variety of actions, ranging from an air attack on the Bismarck to a naval engagement pitting the German battleship against two British battleships.

The strategic portion of the game takes place on a high-resolution map of the North Atlantic. You plot the movement of your ships with the assistance of the joystick-controlled cursor. Positioning the cursor on the different icons scattered around the map also allows you to access various reports, such as the results of your latest air searches or the weather forecast. Enemy ships do not appear on the screen unless sighted or detected in some manner, and even when this occurs, the intelligence you receive may not be accurate.

When opposing ships come into contact on the map, the game shifts to the battle phase. Incidentally, this transition does not happen automatically. You need to move the cursor to the location of the ship under your command and hit the fire button in order to initiate combat. Otherwise, the enemy vessels may simply steam through your position. The rules make this point in a somewhat indirect fashion, and it's easy to skip over the passage in question without grasping its meaning on your first or second reading of the rulebook.



Bismarck recreates the pursuit of the German super-battleship Bismarck during the early days of World War II.

Battles are resolved in arcade style. You aim and fire your ship's guns yourself, using the joystick to adjust gun bearing and elevation. A readout on the screen gives you the range of the enemy ship in your gunsights as well as the range your shells will travel at the present angle of the gun barrel. When you manage to train the barrel directly on target and the two range figures match—bingo!—you score a hit. The graphics in this part of the game nicely accentuate the action. Gun muzzles flash with each broadside and you can follow the course of individual shells as they arc across the sky and either strike home or splash harmlessly into the sea.

Besides directing the fire of the ship's guns, you must also attend to the well-being of your command. The lower half of the battle screen presents a schematic side view of your ship broken down into square compartments. Whenever the ship gets hit, one of these compartments may be set ablaze. If left alone, the fires will spread; should one reach a vital area, such as the magazine or boiler room, the entire ship may explode. Dispatching your fire control team to a burning compartment will extinguish the blaze, but this requires leaving your own guns untended in the process. In a closely fought battlewagon duel, victory or defeat will often hang on how you respond to this recurring dilemma. Either way, the phrase "heat of battle" takes on a literal meaning.

The combat routine includes a few other features worth mentioning. Cruisers and destroyers, although weak in guns, can fire torpedoes with deadly effect. The two British aircraft carriers can also launch flights of Swordfish torpedo planes. When this happens, an air-to-sea combat sequence then ensues. Depending on which side you are playing, you will either take charge of the Bismarck's anti-aircraft batteries or will have the opportunity to pilot each plane as it makes its attack run against the German battleship. The latter activity is difficult in the extreme—the flimsy biplanes are about as manageable as kites in a March wind.

As captain of the Bismarck, you face a two-fold challenge: avoiding destruction, while at the same time destroying as much British shipping as possible. Convoys present the most enticing targets, as they can be sunk with a minimum of risk and in terms of the victory conditions are the equal of a battleship or an aircraft carrier. Of course, you are also likely to find several of the latter types in the vicinity of any convoy, creating a potential deathtrap for your battleship. Depending on the deployment of the British fleet, you may be better off striking quickly at the first squadron that comes within reach and, assuming you sink at least one capital ship, then escaping to the broad expanse of open sea to the southwest.

The most far-reaching decision the German captain will have to make occurs right at the outset. The game commences with the Bismarck steaming along the northern coast of Iceland about to enter the Denmark Strait. However, you are by no means committed to that course of action. An alternative approach, such as

Continued on page 115

Reviewed by Jeffery Scott Hall

F/A-18 Interceptor

Computer: Amiga
Publisher: Electronic Arts
1820 Gateway Drive
San Mateo, CA 94404
Price: $49.95



This game requires neither a professional pilot to fly it nor a professional arcade addict to enjoy it.



Have you ever wanted to fly at Mach 10 in the world's most advanced fighter plane, the F/A-18 jet? If so, then hold on to your helmet and prepare for some non-stop high-flying adventure. From Electronic Arts comes *F/A-18 Interceptor,* which puts you in the pilot's seat of your very own jet!

Creating Your Pilot

If you are starting a new game, you will be prompted to create a pilot and give him a special "call sign" (e.g., Maverick). Simply insert an initialized disk, enter your call sign, and press RETURN. From then on you will be prompted to insert the disk that has your pilot stored on it. Now comes the part that every pilot wishes he could avoid—flight school.

Training Your Pilot

Alright, all you pilots, listen up! You now have eight options: Demo, Free Flight (no enemy confrontation), Training (demo of maneuvers), Training (practice maneuvers), Qualification, Selectable Missions, Next Active Advanced Mission and Your Current Flight Log Statistics.

In order to fly missions, you must first pass Qualification. To do so, you must take off from an aircraft carrier's deck, fly around, then return and land safely on the carrier deck. You will also have to deal with any enemy aircraft which might appear. Once you have succeeded in your training comes the fun—flying into the danger zone.

Flying into the Danger Zone

Whether you are sitting on an aircraft carrier or a landing strip, you will always be in the pilot's seat. From here, you will find yourself confronted with a barrage of indicators, including the HUD (heads up display). As you take off for a routine flight, a message comes in. Your job is to search for and rescue a downed pilot somewhere in ocean. You quickly decrease your thrust to 50% and lower your altitude to 3000 feet. As you bring up your computerized map [M] to check where you are, you notice three red blips on the radar.

Suddenly, the skies go from being friendly to hostile. You quickly turn on your target select radar [T] to find out more about your foes. Their altitude is 15,000 feet and climbing. You increase your thrust to 100% and go vertical for several seconds until your altitude is close to theirs. As you begin to level off, your missile warning flashes with an annoying beep. When you reach to turn on your ECM (Electronic Counter Measures) jammer [J] an IR missile flies by your right wing. You quickly dispense a flare [F] in hopes of it drawing the IR missile away from your jet.

Whew, it worked; now it's your turn for some dogfighting *Top Gun*-style. You quickly cycle through your weapons to the perfect choice—some sidewinder missiles. As you maneuver your jet using the dogfighting skills they taught you at the academy, you bring two of them into range. Your HUD is displaying that familiar diamond shape indicating that you have missile lock-on. They get closer and closer, all while the target computer is emitting a high-pitched buzzer indicating lock-on. You steady the plane, then the diamond turns bright orange—got 'em! As you fire two missiles, you pull up hard, a direct hit to both.

Two down, just one more to go when suddenly you hear your missile warning, but it's too late. An IR missile takes part of your left wing off, and you lose the last remaining missiles. All that's left is you and your trusty GE-M61 (technical talk for a 20mm cannon), so you decide to get the drop on him by flying above his altitude. When he is just below your jet, you nose-dive straight down on him with full cannons blasting. Got him!

Just then you catch a bright gleam out of the corner of your eye. Well, what do you know, that's the downed pilot you've been looking for all this time. You lower your altitude and dispense a rescue pod [SHIFT/F] for him. Now all that's left is for you to return to base and get some overdue rest.

Every time a successful mission is completed, you are promoted and given other missions from which you may choose to fly. You can also update your current flight log onto the pilot disk. And you can quit the game and come back later where you left off.

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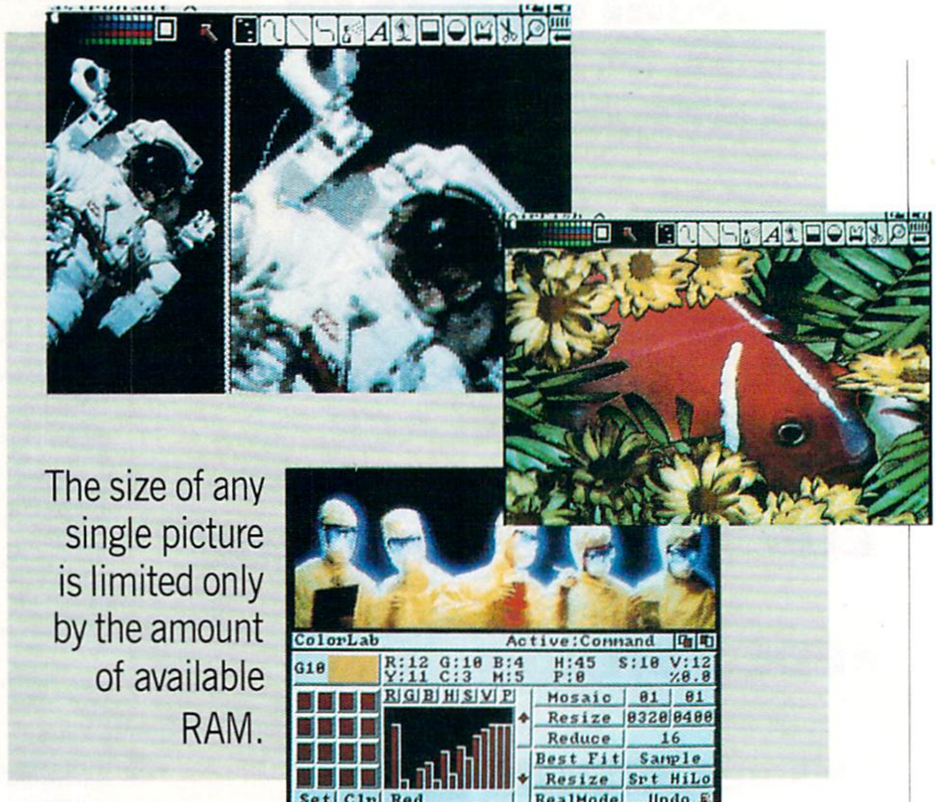
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Reviewed by Steve King

Deluxe PhotoLab

Computer: Amiga (1MB Required)
Publisher: Electronic Arts
1820 Gateway Drive
San Mateo, CA 94404
Medium: Disk
Price: $149.95



The size of any single picture is limited only by the amount of available RAM.

DeluxePhotoLab, Electronic Arts' latest addition to its expanding Deluxe Creativity Series is actually three separate programs designed to create, process and print IFF images. "Paint" is a full-featured Hold and Modify (HAM) paint program. "Colors" processes and modifies IFF graphic files which have already been created by other Amiga programs. "Posters" prints any IFF picture up to one hundred square feet in size.

Paint

Although Electronic Arts denies it, a rose by any other name is still—*DeluxePaint III*? Paint operates in any of the Amiga's graphic resolutions including the underrated half-brite mode (64 colors). Depending on the amount of memory you have available, you can open and paint on multiple screens of differing resolutions and transfer parts of one to another! More important, however, Paint was designed to handle pictures which exceed the Amiga's chip memory (the first 512K). In fact, the size of any single picture is limited only by the amount of available RAM. Large multi-screen pictures can be visually compressed and displayed in a representative fashion on a single screen.

When you first start Paint, a window appears allowing you to set the graphics mode as well as the number of bit planes. To conserve memory, you can even open a three-quarters size screen as a work area. Once these preliminaries are completed, the screen clears and a somewhat familiar command bar appears displaying the color palette and various icons representing the operations available (such as lines, circles, airbrush, etc.).

Most of the normal paint program functions are included with the notable exception of color cycling. Several powerful additions are worth mentioning. Have you ever tried to draw a straight line only to discover it's not really straight? If you hold the SHIFT key while drawing lines, Paint will automatically sense the direction of the mouse and draw a perfectly straight horizontal or vertical line. There is also a tool that lets you draw a free form shape that fills in automatically and another that draws curves defined by four, rather than the usual three points. Holding the CONTROL key while drawing rectangles or ovals will produce a square and circle, respectively. With the Brush Selector Tool you can capture any portion of the screen and save it as a brush, either in the standard rectangular form or as a freeform cutout. One nice feature is that if you switch back to a standard brush (such as a dot or square), a simple command will reinstate your custom brush. Unfortunately, the process doesn't work in reverse. Using the Resize Draw function, you can enlarge or reduce the size of your custom brush (which can be a digitized image), and the program will automatically draw it into any selected area of the screen.

Hidden beneath your canvas is the Palette Screen where you can select or modify colors. At the top are sliders for adjusting the red, green and blue (RGB) components of each color or, if you choose, the Hue, Saturation and Intensity. Below this are 16 rectangles which easily allow you to select any one of the 4096 available colors and paint with any or all of them if you have selected the HAM graphics mode. A unique feature of Paint is its paint set—a series of 128 boxes, each of which can contain a different color. Here is where you can test your colors and easily create color spreads without changing any of the existing colors in your picture! And in the HAM mode, you can paint with any of the colors in these boxes. If you are not in the HAM mode, you can quickly copy the desired color into the palette. Paint also permits you to save paint sets (as well as palettes) to disk for future use.

One of the most powerful features, is the Fill Tool which lets you fill in any geometric or free-form area with user-defined colors, patterns and shadings. The result is defined by your selection of options from the Fill Control window. You can fill an object with a solid color, a pattern containing an image from your custom brush or one of 13 types of gradients. One unique feature lets you easily outline a shape (or text) in a one-pixel-wide color of your choice.

Equally as powerful are the various paint modes which determine how one color is painted over the background. Paint provides 18 different modes, from the standard solid to B&W which actually strips away all of the underlying color leaving only greys. The end result of each mode is mathematically determined and

described fully in the manual. From a practical standpoint, however, you must experiment, as it is almost impossible to visualize the result of such a calculation. Of all the modes, Shade is the most complex and even has its own control parameter window. Shading lets you fill in an object with a range of different user-selectable colors. You can select the area of the object where the highlight will appear, the type of highlight and the degree of ditherization (the randomness of the color mix).

Paint also has several other features worth mentioning. A custom brush loaded from disk can be remapped to match the colors of your current palette as closely as possible. In the HAM mode, this is done automatically. When your mouse pointer is moved to the command menu, the colors temporarily revert to the default palette so you can see (and read) the menu and commands—even if you have changed the palette for your picture to colors which would normally darken the command bar.

Other nice features are the ability to load a portion of a picture and place it on a defined area of the screen and the option to save only selected portions of your picture. Paint has a Print function where you can change the print parameters without having to go back to Preferences. While you can place text on the screen, Electronic Arts has still not provided the ability to select different font disks while the program is running, so you are stuck with the fonts available when you first run the program. Moreover, text placed on the screen is solid and can only be shaded or filled afterwards using the Fill function. Despite these drawbacks, Paint is a powerful, state-of-the-art paint program.

Colors

The second program, Colors, is a handy tool to process and manipulate pictures, and is particularly useful for digitized images. The simplest application is to convert one graphic mode to another. For example, you can load in a low-res picture (320 × 200) and quickly convert it to a HAM picture or vice versa. The more you experiment with Colors, the more uses you discover.

The Command Screen which covers half the display contains a bar graph on the left half. There is a bar for each color register being used by the picture you loaded, and initially the height of each bar represents the amount of red in each color register. By clicking on the buttons to the left of the graph, the bars change to represent the amount of blue, green, hue, saturation and value for each. If you click on the bar itself, it locks that color so any ex-

> The simplest application is to convert one graphic mode to another. You can convert a low-res picture to a HAM picture or vice versa.

perimentation won't affect it, and the corresponding color in the picture will flash. Unfortunately, since the Command Screen covers half the picture, this last feature is rendered somewhat useless.

Clicking on the up/down arrows to the right of the graph will incrementally increase or decrease the amount of that color component in the picture. Thus, if you clicked on the "R" button and then the down arrow, the amount of red in each of the colors will decrease and all of the colors will change accordingly. If you click on the button marked "P," the bars change to represent the number of pixels in your picture that contain each color.

On the top of the screen, statistics regarding the chosen color are displayed, including the number and percent of pixels that use that color. The right half of the screen contains several operation buttons which can turn your picture into a mosaic, change its size, or automatically reduce the number of colors. There are also "flag" buttons which control the smoothing and analyzation process. Colors does an excellent job of maintaining the image quality as it reduces and enlarges it.

Perhaps the most useful function of Colors is to reduce the number of colors used in a picture. Say, for example, you want to place text and graphics on a low-res 32-color digitized picture but none of the colors used in the picture's palette are suitable. Colors will eliminate some of the colors to free up color registers for your text while still maintaining the look of the original picture. There are several ways to do this. First, you can simply tell the program to reduce the number of colors to 24. It will then either eliminate the uppermost eight registers (which will probably affect your picture) or will try to pick the 24 colors which best represent the original 32, depending on which method you select. Another function sorts the registers from high to low so that the uppermost

Continued on page 59

Reviewed by Jeffery Scott Hall

Paladin

Computer: Amiga
Publisher: Omnitrend Software, Inc.
P.O. Box 733
West Simsbury, CT 06092
Price: $39.95

Paladin from Omnitrend software is a tactical swords and sorcery combat game that is sure to bring out the wizard in everyone. Paladin's main screen offers two options: Quest and Mission. From the Quest menu you can start a new game, resume a saved game, delete a saved game, save a game in progress and get info about *Paladin*. When you start a new game, you will be overwhelmed by the number of quests from which to choose (ten different ones in all). Some quests will be simple search and rescue, while others might have you recovering lost scrolls and destroying fire-breathing dragons. The manual describes all quests in detail.

Combat

At the beginning of every journey you will find your band of adventurers located outside a teleporter. The area in which your teleporter is located has to do with which quest you have chosen and cannot be changed. Outside your teleporter, depending upon your mission, you will find several extra "goodies" to aid your quest. Some items include Explosive Crystals, Healing Potions, Spheres of Deflection and Orbs of Fire.

The first thing to do before you leave the surrounding terrain is select the Victory Condition option from the Mission menu. This will give you a detailed explanation of what is expected from your adventurers to complete the quest. No matter which quest you choose, the overall goal is to develop your Paladin into a supreme wizard.

Your group of adventurers will include four different classes: Swordsman, Ranger, Thief and Mage. You control the movements of each member by clicking the left mouse button in the direction you wish to move. This will cause the screen to scroll in the direction you have chosen, displaying the new terrain, and best of all there is no disk access. The current quest member's status is displayed in the upper-right corner of the screen. Here you will find the number of moves the party member has left, Vitality (how well rested he is), his



Health condition, Encumbrance (the number of objects a member can carry), Accuracy (measurement of a member's accuracy with either a sword or spell casting), Detecting and Seeing (how well a member can use these skills).

Each member of your group has six options during play, displayed at the bottom of the screen: Drop Object, Use Stairs, Take Object, Use Object, Open Door and Swing Sword/Cast Spell. You can choose from six different spells: Speed, Confuse, Detect Door, Invisibility, Mind Stun and Fireball. (All spells are explained in the manual.) Each spell takes a certain number of moves to cast and quite a bit of game time. After a member of your group has exhausted his quota of moves, click on the "Next" button to activate another group member.

During your journey, you should refer back to the Mission Status and Victory Conditions options located on the Mission menu, so you will be constantly aware of what you must do to complete the quest. Once all of your members have either exhausted their movement points or you wish to force the next moves, it will be the bad guys' turn.

When it's the enemy's turn, you will have to wait for the computer to finish executing its moves. While doing so, you will see the enemy move around you, hit you and even wound you. You can't defend yourself while this is happening. However, when the enemy's turn is finished, control of all options will be back to your group.

The game ends when you have either failed to complete you quest or your Paladin has been killed. If you successfully complete your mission, your Paladin will be given more attributes to enhance his abilities.

Designing a Quest Scenario

Designing a quest is not difficult. Simply double click on the Quest icon in Workbench. You are given complete control over all aspects of the game under this option. When you design a quest you determine the type of terrain, what a person will need to do in order to complete the quest, attributes of your adventurers (and enemies), and your choice of six different bad guys. The manual gives you a full, easy-to-understand explanation of how to do this.

If you don't have the time to build your quest or have trouble creating your own, you're in luck. Quest Disk Number 1 *The Scrolls of Talmouth* (sold separately) comes jam-packed with 16 exciting adventures. The quests range from easy to very hard, and the variety of adventures will keep you enthused for quite some time.

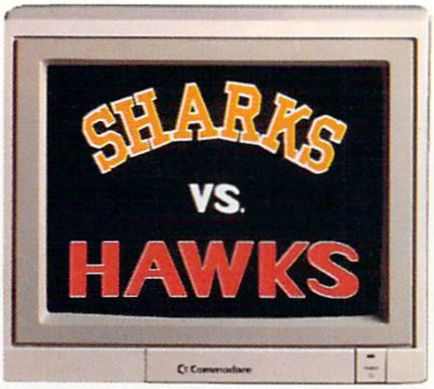
Summary

I have one minor complaint: your characters all look the same (e.g., you can't tell your Paladin from a Swordsman). Although your character's name is displayed at the upper-right corner of the status box, it would have been nice to see different graphics for each race of adventurers in your group.

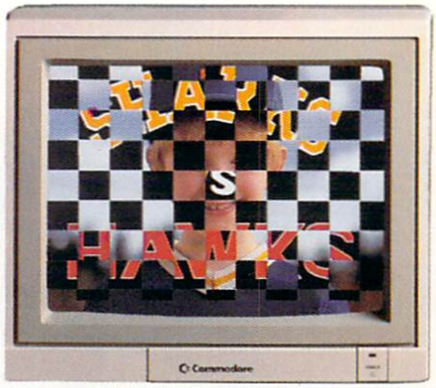
The sound effects in this game are very good, and the scrolling background is smooth and quick. *Paladin* is one of the best tactical D&D-style games I have ever played on the Amiga! The game combines a unique blend of strategy along with plenty of excitement.

Achieving Knighthood

- Always protect your Paladin. One of the best ways to do this is to keep two swordsmen (in front and back) by him at all times, for they are the most expendable in your quest.
- When you encounter a group of evil bad guys, turn your mages and rangers invisible. Then place them just in front of (but not too close to) the enemy. This will prevent them from either hitting you or casting a spell, and the rest of your group will be safe to attack.
- When using Spheres of Deflection be careful not to cast a fireball in the direction the sphere is facing, or the sphere will deflect most of the energy, and will wound or kill the members behind it.
- When asked where you want to save the game, type RAM: and press RETURN. This will speed up the time it takes to save the game to disk while playing your quest. However, make sure that you copy the saved game from RAM: onto a disk before you re-boot, so you don't lose your game.

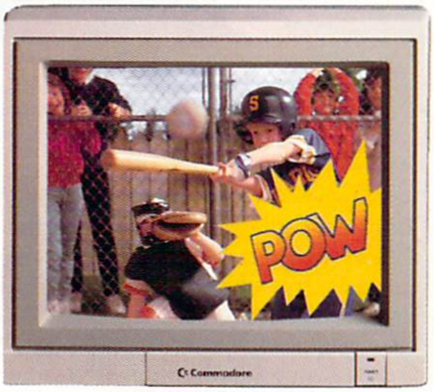


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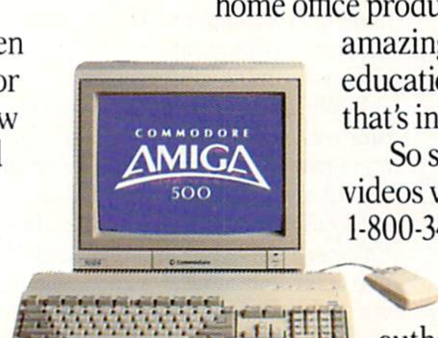


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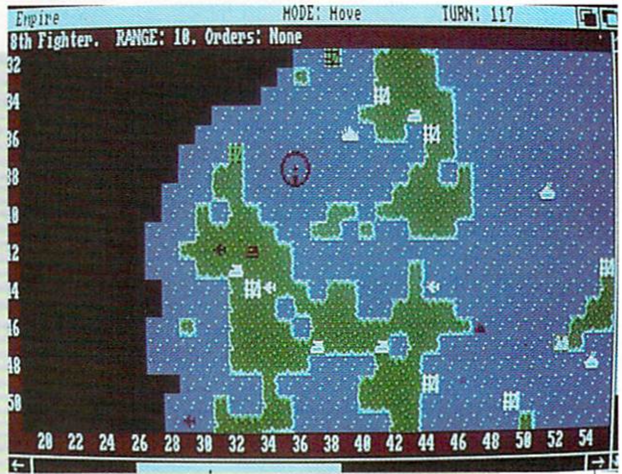
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Only Amiga Makes It Possible.

Reviewed by Steve King

Empire

Computer: Amiga
Publisher: Interstel
Distributor: Electronic Arts
1820 Gateway Drive
San Mateo, CA 94404
Price: $49.95



Billed as the "war game of the century," *Empire* places you in the position of commander of the Alliance forces.

Interstel has prominently placed warning labels on Empire's packaging and in the manual stating that the game can be addicting. Well, if staying up night after night until two in the morning (on a work night!) to play can be considered an addiction, then Interstel is correct. Billed as the "war game of the century," *Empire* places you in the position of commander of the Alliance forces. Your mission is to land on one of many unexplored planets with only a single unit and proceed to conquer the world. While placed in a sci-fi motif, the weapons at your disposal are quite conventional, and the game could take place in today's world. In fact, Interstel has provided maps of the Caribbean, Mediterranean and Southeast Asian areas.

The world as you know it is initially a black screen with several small visible squares, one of which is a city that produces army units every fifth turn. The entire world contains over 5600 squares in a 100 × 60 matrix, and you start at a randomly-selected location. As only 20 × 36 squares are visible at any one time, you use the scroll bars to move around. There is also an option to display the entire world as you know it in miniature with your units in white and the enemy's in red. As your forces increase and move outward, surrounding squares become visible. Somewhere out there, however, the Krellan invaders (played expertly by the computer) are doing the same thing, and soon you're going to meet up.

Your first task is to capture neutral cities and designate their production. You have a choice of armies, fighters, transports (which can carry up to six army units), submarines, cruisers, battleships, destroyers and aircraft carriers (which can carry up to eight fighters). Each takes a different amount of time to produce, and each has different movement and strength factors. While army units initially take only six turns to create, battleships take 60. You have the option of switching production at any time, and subsequent units in each city take less time to produce. One nice feature displays the map showing only the type of units being produced in your cities. In the beginning the game moves rapidly, since you don't have many units and there is no enemy to fight. In fact you may not meet the enemy until the two hundredth turn, but time moves quickly on this world.

You will soon discover that the world is made up of many small islands containing cities, and the only way to expand is to produce sufficient transports to carry your armies. You must also capture neutral cities on other islands to allow your fighters (which have a range of 20 squares) to move with you, as they can only land on carriers or in friendly cities. Once you capture a city, a window appears where you can designate which type of unit you will produce there. As you expand your domain, you will find that your initial cities may be producing army units which are relatively useless because there is nowhere for them to go. Switch production to transports to carry your armies to the front. One of the most enjoyable aspects of the game is exploring the world and determining the most efficient logistics.

While all this may appear tedious and time consuming, Interstel has employed numerous techniques to take the drudgery out of warfare. In fact, the sheer simplicity of movement and battle makes *Empire* so enjoyable and fast paced. Unlike other war games, you don't have to worry about different types of terrain (i.e., mountains, forests, deserts) as there are only two types in *Empire*—land and water. There are no multiple-unit attacks, so it's one on one. The winner wins, and the loser gets eliminated. Naval vessels are the exception and may win but also suffer damage points which weaken them unless they are repaired at a friendly port. You are given the opportunity to move each unit on each turn, which can become burdensome once you have many units. To minimize this, Interstel has employed several unique time-saving functions.

Basic movement is controlled by the mouse, the cursor keys (four directions) and the numeric keypad (eight directions). You can put units on sentry which means they stay where they are until you cancel their orders or they encounter an enemy unit. This is quite useful when cities far from the front produce army units that are waiting to be transported elsewhere. You can also use the mouse to designate a path which the unit will constantly patrol. Or you can order a unit to proceed in a given direction, and it will continue to move until it can go no further. This is particularly useful for dispatching ships to explore the seas, as they will travel (exposing the map) until they hit land or an enemy vessel. Finally, you can order a unit to proceed to a specific location, and it will move there (at its own speed) circumventing all obstacles. There is also a Group Survey command which lets you draw a box around a number of units and give them all the same order. You can direct any naval vessel to "escort" another, so if six destroyers are escorting a transport, moving the transport will automatically move the destroyers without further ado.

Continued on page 111


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Reviewed by Russ Ceccola

CubeMaster

Computer: Amiga
Publisher: ASDG, Inc.
925 Stewart Street
Madison, WI 53713
Price: $24.95



Your goal is to clear each screen of CubeDrones by hitting them with the beams from your particle cannon.

CubeMaster, the first attempt at a game from ASDG, Inc., publisher of *Facc II* and the ASDG Recoverable RAM Disk, is more than flying around and shooting a bunch of cubes. As Perry Kivolowitz (president of ASDG, Inc. and principal designer of *CubeMaster*) states in the manual: ". . . while other games for the Amiga may be more flashy, in some respects *CubeMaster* should earn high marks for playability and entertainment value."

In *CubeMaster*, you control an astronaut whose goal is to clear each screen of CubeDrones by hitting them with the beams from a particle cannon. CubeDrones come in two sizes and seven colors (like spandex™ pants)—each with its own special purpose and effect upon your player. Hitting large CubeDrones makes smaller ones, and hitting the smaller ones disintegrates them. Clear a level by destroying all of the CubeDrones on that level.

A complete game consists of finishing all 100 levels in *CubeMaster*. This won't take as long as you might think, however, *CubeMaster* is a game in which you gradually develop skills while playing over and over again. Don't expect to pick it up and excel from the start. In this scenario, practice does make perfect.

The first thing you need to know is what the different CubeDrones do when touched or destroyed by your alternate personality in the *CubeMaster* world. Pressing the joystick left and right makes your character rotate counterclockwise and clockwise, respectively. Pushing forward moves your character in the direction he's facing by firing forward rockets. Pulling back activates retro rockets in the opposite direction you're facing. Pushing the button fires particle beams. Yellow CubeDrones will switch all your joystick controls around when you touch them. A cuckoo clock sound means that the controls have been switched. Destroying a yellow CubeDrone will reduce the time that your controls are messed up. Try to avoid touching these CubeDrones if possible, because if you're moving very fast, you will just spin out of control with no logical way to stop except waiting until you regain the correct controls for the astronaut or firing your brakes.

Every time you fire your particle cannon, heat builds up within it. If it gets too hot, you can't fire until it cools down entirely. Touching brown CubeDrones increases the heat of your cannon. Destroying them reduces the heat. Touching blue CubeDrones reduces the number of particle beams that you can have in effect at any given time. The maximum is five beams. Every time you destroy a blue CubeDrone, you gain back a lost particle beam. Light grey CubeDrones reduce your shield strength slightly when touched. When you hit them, they change colors into another CubeDrone.

Red CubeDrones are the most dangerous. Touching one reduces your shield strength much more than would a light grey CubeDrone. However, if you destroy a red one, you gain back shield strength. But be careful! Most large CubeDrones, when hit, will split into four small ones, whereas large red CubeDrones will split into eight small ones. Try not to hit large red CubeDrones. Let them change color.

Every time you disintegrate a dark grey CubeDrone, you are granted the Halo of Displacement. This Halo shifts the atoms in your body, so CubeDrones pass right through you (but it doesn't last very long.) Touching dark grey CubeDrones doesn't reduce your shield strength either! Finally, green CubeDrones are the toughest to get rid of because they require multiple hits to disintegrate.

There are some general rules regarding CubeDrones that you must know to fully understand what you have to contend with. First, if an option called "Reincarnation" is turned on for a level, you must move more quickly. In this mode of play, the small CubeDrones will change to large ones if not destroyed in a certain amount of time. This option increases the time you might have to spend on a level, depending on how quick your trigger finger is. Secondly, CubeDrones change color on their own, so don't bank on a CubeDrone staying a particular color for too long. Green CubeDrones don't change color. Finally, the large CubeDrones have more of their special properties. For example, a large light grey or red CubeDrone will take away more shield strength than would a small one.

To aid you, certain things are revealed at the beginning of each level. In particular, the number of particles you can have in flight at once and their range is displayed. Also, the number of starting CubeDrones is on the screen. Most importantly, you are told which of three possible options that affect game play are activated for that level. One of these is Reincarnation mode. Another is Equal Mass Reaction in which you bounce backwards when you fire the particle beam. Finally, Sequential mode describes a situation in which you must destroy all of the small CubeDrones before you can kill the large ones.

Scoring is the main objective of *CubeMaster*. The scoring methods are set up so you are forced to play *CubeMaster* strategically, as well as for its arcade challenge. You increase (or decrease) your score at the end of each level. There is a calculated best score value for each level that counts down with time next to your current score. It counts downwards along with the timer on the screen and the value left at the end of the level is added to your score. If you take too long, the best score counter can go negative. Hitting small and large CubeDrones adds to your score proportionately, with the small ones rewarding more points.

There are also various Bad Guys that appear from time to time to bother you. Some follow you, others fire seek-and-destroy missiles or paralyze you for a short while. The rule here is to get rid of the Bad Guys as soon as they appear. Hitting Bad Guys adds the most to your score.

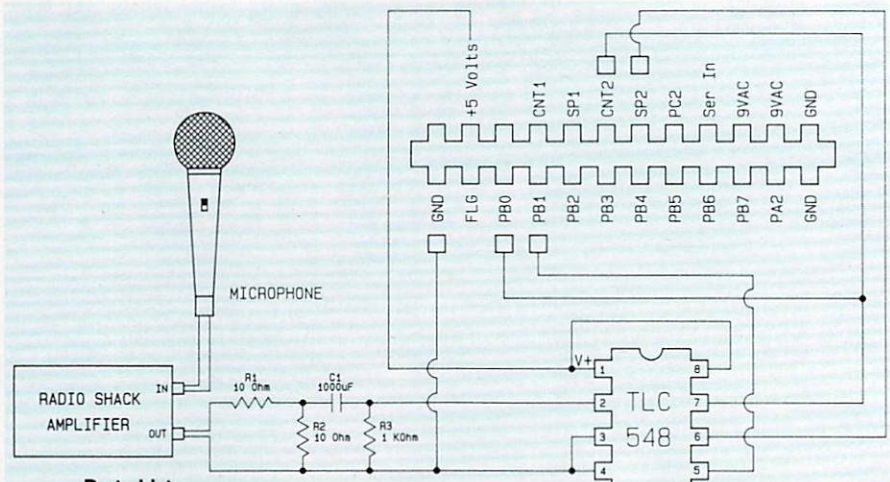
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by John Iovine

Sound Digitizer II

Here is another audio digitizer for the 64 and 128, but ths time John has placed the emphasis on performance. Commodore 128 listings are printed this month, and the 64 listings will be printed next month.



STEPHEN KOZACHYN

Parts List

Item:	Cost: $	Radio Shack #:
8-bit A/D converter	3.99	276-1796
10 ohm resistor (2)	.39 pkg/5	271-1301
1K ohm resistor	.39 pkg/5	271-1321
1000 uf capacitor	.99	272-958
Audio Amp	11.99	277-1008

This is my second article on sound digitizing. The first article (*Commodore Magazine,* August 1987) generated sufficient reader interest to warrant this article. In the first article I was more concerned with demonstrating digital to analog conversion, and the digitizer was the demonstration circuit. With that out of the way we will now attempt to build a sound digitizer that will provide maximum performance for minimal investment and minimum fuss, and we'll kick in a couple of special effects to boot.

The principals of sound digitizing as described in the first article remain the same. Those of you who are interested in the basic principals of sound digitizing should refer back to the first article.

I have made substantial improvements in the circuit and the program. The circuit improvements really constitute a simplification of the overall circuit (See figure 1). We accomplish this simplification by eliminating the digital to analog chip (DAC) from the original circuit. You must have the previous article on sound digitizing and compare the schematics from both articles to see this difference. Since we have removed the DAC chip, it appears that we are left with no way to play our digitized sound back. That's not true, of course, our Commodore computers have a built-in DAC chip commonly called the SID (Sound Interface Device) chip. By implementing the SID chip we can effectively remove the DAC chip. This simplifies the circuit and reduces the cost of the unit.

As with most things there are advantages and disadvantages to taking any particular route, and this is no exception. One disadvantage to using the SID chip is that the SID chip can only output sound with a four-bit resolution as compared to the eight-bit resolution from our original circuit. But there is also an advantage in using the SID. Since the SID requires four bits, we can pack two four-bit nibbles of information into each byte of memory. And what that boils down to is a doubling of our record or playback time. So from my count we have two advantages and one disadvantage for the SID implementation, therefore, we will go with the SID chip.

Circuit Construction and Operation

We have used the serial analog to digital chip before. For regular column readers this is an old friend we are pressing into service again. For newer readers who may just be joining us, I'll give a basic overview on the serial A/D chip operation. (For a more complete description and other projects using this serial chip see the July 1987 and August 1987 issues of *Commodore Magazine.*) The serial A/D chip reads the analog voltage present on pin two and converts this voltage to an eight-bit binary value. The analog voltage that appears on pin two is the voice or sound output from the audio amp. The binary value is input serially into the Commodore serial register. Our program reads this register and saves the value into memory (after some bit manipulation) for later playback. The circuit takes approximately 5000 samples per second in the slow mode and 10,000 samples per second in the fast mode.

The circuit is relatively simple. We are using an off-the-shelf audio-amp from Radio Shack with a microphone for the front end of the digitizer circuit. (See Parts List.)

SID Chip Operation

The register on the SID chip that we are using to generate sound is the four-bit volume control register. Normally this register doesn't produce any sound by itself. But we are varying the output voltage so quickly (5,000 to 10,000 times per second) that we do generate sound. And since our output voltage is an approximate value of what our input voltage was, we get back our original sound (approximately).

ML Program

The ML program performs a couple of bit manipulations to increase our record and playback time. As I stated previously the SID chip can only use four bits of information in our application. This does provide us with the opportunity to double our record and playback times by packing two four-bit nibbles of information into each memory byte. The program accomplishes this by first reading the eight-bit value left in the serial register from the circuit, then performs four (LSR) Logic Shift Right, which moves the hi-nibble to the lo-nibble position.

First Sample

```
            (4) LSR
1001xxxx  ---------->  xxxx1001
```

The next sample is pulled from the serial register. "AND" this byte with decimal 240 (hex F0) which effectively erases the lo-nibble while preserving the hi-nibble value.

```
Second Sample
1010xxxx
11110000      AND 240
--------
10100000      Result
```



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Then this result is ORed with the first sample. This combines both four-bit nibbles.

First Sample	0 0 0 0 1 0 0 1	
Second Sample	1 0 1 0 0 0 0 0	OR
	1 0 1 0 1 0 0 1	Result

This result is stored in memory. The entire process is repeated and stored in memory sequentially until our allotted memory is full.

The playback works in a similar manner. First, it pulls the byte from memory and stores the lo-nibble into the SID volume register. Then, it shifts the hi-nibble into lo-nibble position and transfers it into the SID.

Basic Program Operation

Type in and save both programs under their proper names; this is essential since the programs chain to one another. When you run the basic program you are presented with a menu.

Item 1 of the menu loads in then runs the BASIC loader for the ML program and returns to the menu. This is the first thing you should do when starting the program. The ML program is the driving force that operates the circuit and performs all the digitizing functions.

Item 2 selects the recording function. Upon entering 2 and pressing the RETURN key, the computer will immediately begin recording.

Item 3 selects the playback function. By pressing the "R" key as the computer is in playback, your sound sample will enter into a half second repeating loop until you release the key. It may take a second or two before the computer "sees" you've pressed the "R" key, so be a little patient.

Item 4 puts the 128 computer into the Fast Mode. You will achieve your best recordings in this Mode.

Item 5 places the 128 in the Slow Mode, this will give the longest recording time.

Item 6 prompts you for a filename of a sound sample then loads that sound sample you have recorded to your disk into memory for playback. Do not add the prefix "SND." to the filename; the program will do that automatically. (See Item 7.)

Item 7 prompts you for a filename to save a sound sample in memory to disk. The program adds a prefix "SND." to your filename before saving for easier identification of sound sample files stored on your disk. The save function uses a dynamic keyboard technique to "BSAVE" the file. In order to accomplish this the program will end after every save. Just enter RUN after the computer is finished saving your sound sample to reenter the program.

Item 8 adjusts the pitch of the playback. This function has no effect on the record function.

Item 9 views the directory of the disk currently in the drive. The directory is selective and will only display the sound sample files on the disk.

Item 10 quits and ends the program.

When you're ready to record, turn the audio amp on to full, press 2 then RETURN. When the program finishes recording, it will return to the main menu. Press 3 and RETURN for playback. If there is a lot of static it is probably due to over modulation. Turn down the volume on the amp or hold the microphone further away from your mouth. After you have a satisfactory recording, press "R" during playback to hear the digital repeat. The computer will continue playing the same half second track over and over until you release the "R" key. You will get better sound recording by staying in the fast mode. The rest of the menu is self-explanatory. ■

Before typing this program, read "How to Enter Programs" and "How to Use the Magazine Entry Program." The BASIC programs in this magazine are available on disk from Loadstar, P.O. Box 30008, Shreveport, LA 71130-0007, 1-800-831-2694.

SID 1.0

```
5 REM **** SAVE THIS PROGRAM AS "SID
  1.0" ****'BAJL
10 REM BASIC ML LOADER'BNOB
12 REM FOR SID PLAYBACK'BOGD
14 BANK 15:  FOR X=4864 TO 5168'ENUG
15 READ A:POKE X,A:T=T+A:NEXT'FKCH
17 IF T<>35199 THEN PRINT"ERROR IN
   DATA STATEMENTS":END'GHAQ
18 LOAD"128 1.0",8'BCUH
20 DATA 120,032,004,020,024,074,074,
   074,074,172'BOXF
30 DATA 000,020,141,001,255,145,253,
   169,000,141'BOMG
40 DATA 000,255,032,004,020,172,000,
   020,141,001'BOQH
50 DATA 255,041,240,017,253,145,253,
   169,000,141'BOCJ
60 DATA 000,255,200,140,000,020,192,
   255,208,019'BOOJ
70 DATA 160,000,140,000,020,230,254,
   165,254,201'BOFK
80 DATA 244,208,006,169,066,133,254,
   088,096,162'BOFM
90 DATA 001,202,208,253,076,001,019,
   120,172,000'BOLM
100 DATA 020,141,001,255,177,253,142,
    000,255,041'BOTC
110 DATA 015,024,141,024,212,032,033,
    020,172,000'BOBD
120 DATA 020,141,001,255,177,253,142,
    000,255,174'BOBE
130 DATA 001,020,024,074,074,074,074,
    141,024,212'BOTF
140 DATA 200,140,000,020,192,255,208,
    026,206,001'BOJG
150 DATA 020,160,000,140,000,020,224,
    000,240,022'BOIH
160 DATA 230,254,165,254,201,244,208,
    006,169,066'BOPJ
170 DATA 133,254,088,096,160,036,136,
    208,253,076'BOBK
180 DATA 078,019,162,016,142,001,020,
    088,165,212'BODL
190 DATA 201,017,240,004,120,076,140,
    019,120,198'BOWL
200 DATA 254,202,208,251,162,016,169,
    000,172,000'BOYD
210 DATA 020,141,001,255,177,253,142,
    000,255,041'BOTE
220 DATA 015,024,141,024,212,032,033,
    020,172,000'BOBF
230 DATA 020,141,001,255,177,253,142,
    000,255,024'BOUG
240 DATA 074,074,074,074,141,024,212,
    200,140,000'BORH
250 DATA 020,192,255,208,060,206,001,
    020,160,000'BOJI
260 DATA 140,000,020,230,254,174,001,
    020,224,000'BOUJ
270 DATA 208,192,076,162,019,191,000,
    008,160,008'BOHL
```

Continued on page 104

by Mark Jordan

geoMerge

Berkeley Softworks' series of GEOS-compatible products opens up a world of opportunity to Commodore users. Take some tips from Mark Jordan and soon you too will be Pumping GEOS.

When you buy *geoWrite 2.1* you get a lot more than just a word processor. You get a handy TextGrabber utility for converting files from other word processors. You get two Paint drivers that allow you to create *geoPaint* files out of *geoWrite* files. You get *geoLaser*, which I don't know anything about because I don't have a laser printer. And you get *geoMerge*, this month's topic.

What's *geoMerge?* It's a program that allows you to merge data from data lists into a *geoWrite* document. Merging data into word processing documents was one of the early wonders of personal computing: the ability to type a form letter just once and have it send out "personalized" copies to hundreds of people seemed like the greatest.

Unfortunately, like all wonder tools, this one was abused by overzealous people, particularly those trying to hawk something. Here's a typical "personalized" form letter that I might receive on any given day:

Dear Mark Jordan,
You, Mark Jordan, may be one of the lucky winners in Noble County Indiana, Mark Jordan. Mark, you and the rest of the Jordan family should be proud to have been selected bla, bla, bla, Mark Jordan.

Disgusting, isn't it? It would be downright aggravating, if it weren't so absurd. I don't even live in Noble County. Then, about two days after this one arrives, I get another:

Dear Nark Jordan,
You, Nark Jordan, may be bla, bla, bla, Nark Jordan.

Ever gotten one like that? How about one that knows you only by your initials?

Dear M Jordan,
You, M, may be one of the . . .



MIA BOSNA

Not very impressive, is it? Or how about the ones that somehow never got your name input quite right into the database?

Dear Mr. Mark,
You, Mr., may be one of the . . .

It made me feel like Mr. Bill, the clay figure from *Saturday Night Live.*

Okay. Point made: merged form letters have given computers a bad name. But it doesn't have to be that way. Sometimes it just plain makes sense to type a letter, a resume, a who-knows-what just one time and let the computer fill in not only names and addresses but also other important data like amounts of money paid. The idea of merging a word processor with a database is, despite the abuses, still a very good one. *GeoMerge,* I'm happy to report, is one of the most intuitive and pleasant programs that I've ever used. And it is versatile: not only can you use data from any of the GEOS data-type programs *(geoCalc, geoFile, geoDex)*, you can also use *geoWrite* itself as your database. Or, and this can be handy at times, you can simply type in the data as you print out the form letters.

The Two Rivers

Question: What do Pittsburgh, PA and *geoMerge* have in common? *Answer:* They both are the point where two great entities merge into one. In Pittsburgh it's the Monongehela and Allegheny Rivers that meet and form the Ohio River. With *geoMerge* your two entities are called "Form Document" and "Data Document." The result of this merging is the great "Form Letter."

Creating the form document is not difficult. Start by typing the letter you wish to send—generically. How? Well, if you were creating this letter without *geoMerge,* you'd need to type in the name and address of the first person on your list of letter recipients, print the letter, edit the name and address for the next person on your list and so on.

We aren't going to do it that way. We're going to let the program insert names and addresses in the proper slots in our letters. But we need a way to let *geoMerge* know where to put the names and addresses from our data list.

The way is to use variables. In case you're not a programmer and the concept of variables has been giving you problems since ninth grade algebra, I think doing one *geoMerge* file will clear you up fast. These variables are nothing more than generic names in your letter that change with each new data record.

For example, instead of "Dear George" we need something less specific like "Dear Next Person on List." Then each time a new person was being processed, Next Person on List would simply be his or her name.

That's the concept. Unfortunately, it isn't so direct as typing Next Person on List. Computers are too dumb for that. If you tried it, all you'd get is a printout reading "Dear Next Person on List," and I gar-ron-tee you that your letter reader would know that this is a form letter.

What we need is a way to type things so that the computer won't think it's regular text. *GeoMerge* does it this way: you must enclose your variable inside double greater-than and less-than signs. <<Like this.>>

So could you type it this way: Dear <<Next Person on List>>? Nope. But almost. *GeoMerge* doesn't allow spaces within the variable name. Try this: Dear <<Nextpersononlist>>. This would be a legitimate variable in *geoMerge.* Be aware that *geoMerge* allows a maximum of 20 characters in a variable. "Nextpersononlist" is 16 characters long. Close, but still okay.

I've been calling these things variables because that's what they are called when programming and that's exactly what they are in function—they vary from item to item. But if you go looking through your *geoMerge* instructions in the manual, you'll see that *geoMerge* calls them labels. So, for consistency's sake, that's how I'll refer to them from this point hence.

Okay, that's an overview on how labels work. Before delving further into the nitty gritty, we need to see how to create our data documents.

As stated, there are several ways. If you own *geoFile, geoCalc* or *geoDex,* you can

Pumping GEOS

Vol. 1, Num. 3

USING geoMERGE

<<title>> <<firstname>> <<lastname>>
<<street>>
<<city>>, <<state>> <<zip>>

Dear <<firstname>>,

Well, how's it going,<<IF title="Mr.">> Buddy<<ELSE>> Toots<<ENDIF>>? <<IF paid="$10.00">> Thanks for being prompt in paying your dues. <<ELSE>> Where's the dough, Bro? Dues are due.<<ENDIF>>

Next month's meeting will feature graphics. <<computer>> owners will be especially interested in the discussion on <<IF computer="Commodore 64">>bit-mapped graphics.<<ENDIF>> <<IF computer="Commodore 128">>the VDC. <<ENDIF>> <<IF computer="Amiga">>Fat Agnus and the California raisins. <<ENDIF>> You won't want to miss it.

Your leader,

Sam B. Hall

The FORM document to the left merges data from the DATA document to the right and creates the 3 letters at the bottom.

title
firstname
lastname
street
city
state
zip
paid
computer
*
Mr.
Jeb
Makula
R. 1 Box 104
Claypool
IN
46510
$10.00
Commodore
128
*
Mrs.
Rosie
Roupp
320 N. Weaver
Hesston
KS
67062
$10.00
Commodore
64
*
Mr.
Joel
Klopfenstein
137 E.
Armitage
Glendale
Heights
IL
60137
$0.00
Amiga
*

Letter One

Mr. Jeb Makula
R. 1 Box 104
Claypool IN 46510

Dear Jeb,

Well, how's it going, Buddy? Thanks for being prompt in paying your dues.

Next month's meeting will feature graphics. Commodore 128 owners will be especially interested in the discussion on the VDC. You won't want to miss it.

Your leader,

Sam B. Hall

Letter Two

Mrs. Rosie Roupp
320 N. Weaver
Hesston KS 67062

Dear Rosie,

Well, how's it going, Toots? Thanks for being prompt in paying your dues.

Next month's meeting will feature graphics. Commodore 64 owners will be especially interested in the discussion on bit-mapped graphics. You won't want to miss it.

Your leader,

Sam B. Hall

Letter Three

Mr. Joel Klopfenstein
137 E. Armitage
Glendale Heights IL 60137

Dear Joel,

Well, how's it going, Buddy? Where's the dough, Bro? Dues are due.

Next month's meeting will feature graphics. Amiga owners will be especially interested in the discussion on Fat Agnus and the California raisins. You won't want to miss it.

Your leader,

Sam B. Hall

use any of them. Or you can use *geoWrite* itself. Or you can type in the data lists as you print out your letters. This last choice is for when you are creating a temporary form letter and need to send to only a few.

In this article we will use the second method—*geoWrite*—to create our data files simply because everyone who has *geoMerge* must also have *geoWrite 2.1*. The principles are the same for using *geoCalc* and the others.

We start by booting up *geoWrite*. Click "Create" and name your data file "Sample data." *GeoMerge* has a few rules for recognizing labels in the data document just as it does in the form document. The first thing we need to do is to type out all the labels we will use in our form letter.

We do this in the following manner: type each label exactly as we will use it in the form letter, then terminate it with RETURN. When our list of labels is completed, we need to type an asterisk (*) followed by RETURN. If you glance at the right side of the "Pumping GEOS" sidebar, you see that the first nine items are labels, not specific names.

Remember, this is just our list of label names, not the data itself. Type:

title
firstname
lastname
street
city
state
zip
paid
computer
*

Notice we used the same nine labels as in the "Pumping GEOS" sidebar. As far as I can tell, there is no limit on the number of labels. Also, note that we used no spaces at all within any labels. That's a *geoMerge* rule.

After this list we can start typing our records (common term for data lists). Three rules must be obeyed. One, we must have the same number of items for each data list as the label list has. Two, the items must be entered in the same order as the label list. And three, each item must be terminated with a RETURN.

What if you're typing in a person who doesn't have all the items in your label list, such as, a computer? Shocking as it may seem, not everyone has one yet. The solution is quite simple: simply press RETURN on a blank line. No problem there.

At the other end of the continuum, you might wonder how long each item can be. Up to 200 characters, that's how long. That means that you might have well over seven lines of screen text for one complete record. But . . . it will only have seven RETURNs. If you glance down to the first set of data on the "Pumping GEOS" list, you'll see that "Commodore 128" didn't all fit on one line. That's okay because when I typed this list I didn't press RETURN after Commodore. So what may look like two separate items is actually one. The computer knows where the RETURNs are even if we don't. That you can depend on.

Go ahead and type in the data from "Pumping GEOS." Be sure to place an asterisk between each record. Then close the file.

Was that easy, or what? Now let's put it all together to create a simple form letter. For the time being ignore the sample form letter on the "Pumping GEOS" sidebar.

Open a *geoWrite* document and call it Form Letter. Then type the following. Surrounding the labels, I've placed hyphens to help you to realize how to place spaces. Instead of typing the hyphen, type a space.

<<firstname>>-<<lastname>>
<<street>>
<<city>>,-<<state>>--<<zip>>

Dear-<<firstname>>-<<lastname>>,
Club dues are due again. You have paid-<<paid>>-to date.

Now close the file, exit *geoWrite*, and double click *geoMerge*. The first thing that will happen is that you'll get a directory of *geoWrite* files, and you'll be asked to choose one as a form file. Choose Form Letter, the one we just typed.

Next you'll be asked whether you want to use a *geoWrite* file to merge information. Click Yes. You'll be shown the file directory again. Choose the data file we entered, "Sample data."

Did you turn your printer on yet? I hope so, because the printing process will soon ensue. Watch as *geoMerge* prints out your letter, placing the data from each record in the proper place where the labels occur. You will discover that *geoMerge* reformats lines as it needs to. For instance, if one record had some extra long data items in it, they might push the length of whatever line they fall on past the right margin. No problem for *geoMerge*. Nifty, huh? (Quick, first person to spot an example of this in the three letters on "Pumping GEOS" gets a prize. Dial 1-555-PUMPING to see if you won.)

It can even get niftier. *GeoMerge* allows the use of IF statements which, in effect, allow the program to do some decision-making as it prints. These IF statements may seem a tad confusing to non-programmers at first; programmers will have no trouble learning to use them as soon as they learn the correct syntax.

The procedure for IF statements is as follows: The word IF must be typed in capital letters. It must be enclosed in the same greater-than/less-than symbols with the label it is testing. The word IF should be followed by a label, then an equal sign (=), then a condition which is enclosed in quotes. Finally, the IF statement should conclude with an ENDIF.

Whew! It sounds a lot worse than it is. Here's a sample:

Dear <<firstname>> <<lastname>>,
<<IF paid="$10.00">>Thanks for the prompt payment.<<ENDIF>> It is much appreciated.

As *geoMerge* grabs record after record, it will check the paid label, compare it to $10.00, and if it finds $10.00 in the data list it is presently working with, it will print everything between the IF and ENDIF. It will continue printing with whatever followed the ENDIF and all will be well.

But what if the person hadn't paid the $10.00? Then the IF statement would be false. The line reading "It is much appreciated" wouldn't be what we want. We need to learn one more command: ELSE. The program will execute whatever follows the ELSE command if the IF command is found to be false. Take a look:

<<IF paid="$10.00">>Thanks for the prompt payment. It is much appreciated. <<ELSE>> Please remit payment as soon as possible.<<ENDIF>> Thank you very much.

In the above, if the record at hand shows that the amount paid is $10.00, then we'll thank him properly. Everything between the IF and ELSE is printed. But if we come across a non-payer, he is given the proper command: send the money. Only what's between the ELSE and ENDIF will be printed. Both paragraphs will conclude with "Thank you very much."

What happens in that rare instance when the person paid more than $10.00? Ah, our *geoMerge*d letter rebukes him and that's not what we want. Unfortunately, *geoMerge* doesn't have any other comparison options besides equal (=). In a case

like this, we would need to change our data in the "paid" category to a simple "yes" or "no" answer instead of an amount. You must be careful.

Take a look now at the form document on "Pumping GEOS." If you look at the first line of the letter you'll see how the "title" label is used to set up an IF statement. If the title of the record at hand is "Mr.", then our letter will print out the word "Buddy." If it isn't, then we'll get "Toots." You're one step ahead of me: what happens if the title isn't "Mr." but it's still a man's title? Something like "Dr." I'll tell you what happens: we get a ridiculous sounding letter to a male doctor that calls him "Toots." Doctors, as a whole, don't go for this sort of thing. Which is my point at the top of this piece: be careful of Merge-madness.

Look further down that document to the <<IF computer= "Commodore 128">>. Note how we could deliver a different message tailored to all three types of Commodore computer owners. However, if one of our members doesn't have a computer yet, he's going to get a strange letter: "Next month's meeting will feature graphics. Owners will be especially interested in the discussion on . You won't want to miss it." I repeat: don't go hog-wild with this merging stuff.

Merging Traffic—Be Considerate of Your Fellow Man

Since you've got me going now, I might as well lay down all the rules for polite merging.

1) Don't get too chummy. Use the name only when you would in a normal letter.
2) Don't get too fancy. If it really doesn't add anything to the letter to have some fancy IF statements, leave them out.
3) Type your data in correctly. Personally, I just hate being called "Nark."
4) Read your finished letters. If there are hundreds (or even dozens), at least read some random ones. You'll be surprised at the "Toots"-type errors you'll discover.
5) Don't pretend it isn't a form letter. Your reader will suspect it anyway, so don't try to make it read like it was targeted to just that person. This isn't to say you've got to announce it. Just don't be phony about it.
6) Most of all, don't send form letters to friends, especially if the letter closes with this statement: "You're the best friend a person could ever have, <<first-name>>."

Catch you next month. Keep Pumping GEOS. ■

Continued from page 43

registers (which will be eliminated) always contain the least-used colors.

The second method takes a bit more work but produces better results. By selecting Palette from the menu, another window appears with bars the same color as the picture colors they represent. If you look at them closely, you will undoubtedly notice that several if not many are very close in shade. The first step is to combine those registers. One way is to merely make one register the same color as another; the other is to combine the two colors into an average third color.

In either case, when you are through, you will have two separate registers with the same color. Since you obviously don't need both, you can select the Meld Register function to free up one of them (which you can now use for text of any color you like). In many cases, particularly in the HAM mode, it is amazing how many color registers you can eliminate and still maintain the look of the original image.

Another important use of this function is to free up color register 0 which is always the background color. If you have ever tried to use an image (especially a digitized one), you will often find that the background you place the image upon shows through "holes" in the image. To cure this annoying problem, simply copy the color for register 0 of your image to another register containing a similar color (or average them) and then meld register 0 to the other register, leaving no colors in your image associated with register 0. By the way, if all of this technical talk about registers and pixels has you lost, don't worry. The manual contains a thorough discussion of both color theory and the way the Amiga computer generates and displays its colors.

Colors has several other unique and useful functions. It will take a picture and change its palette to match that of another picture while at the same time trying to maintain the appearance of the picture. It will also convert a color image into a 16-shade black and white image, and perform color separations including yellow, cyan and magenta for printing applications. Although Colors does not provide any sophisticated or user-definable smoothing or edging functions, it does give the untrained user the required tools to perform most of the useful and necessary image processing functions.

Posters

Posters is the simplest of the three programs to use and it essentially serves one purpose—to print an enlarged (or reduced) image of an IFF picture. The command screen is essentially a large grid. When you load the picture you want to print, it appears as a grey rectangle in the upper-leftmost square. You select the print size by using the mouse to drag the bottom right corner of the rectangle which enlarges the picture to the proper size, always maintaining the proper aspect ratio. If you wish, however, you may make the picture any size. Information about the size of the poster appears on the right side of the screen including the number of pages it will take to print it. If you want, you can enter the poster size using the keyboard.

Once you have selected the size of the picture and determine whether you want it printed horizontally or vertically, simply tell the program to print it. The print requester will appear and you have two time-saving options. First, the background color (which there may be a lot of) can be left white. Second, you can elect not to smooth the image which produces a poorer result, but takes much less time.

Which brings us to the $64,000 question—just how long does it take to print a poster? Well, it obviously depends on its size and the speed of your printer. I printed a six-page poster (three pages across and two down). Using the smoothing option, it took four minutes per page plus an additional two minutes and 45 seconds to analyze each column of two pages. While the program is capable of printing a ten foot by ten foot poster (on approximately 160 sheets of paper which you must tape together), it will certainly take a considerable amount of time and many ribbons to do it. Needless to say, printing a postage stamp-sized image takes much less time. While Posters has great capabilities, its practical usefulness is limited.

Summary

Great effort has obviously been expended to put this package together. The program is not copy protected and comes with an art disk containing several excellent and professionally-drawn pictures. The 200-page manual is very thorough and contains tutorials and appendices on color theory as well as an explanation of the Amiga display modes. While *DeluxePhotoLab* is not outstandingly unique, all three programs in one package do provide professional, state-of-the-art tools for the graphic artist at a reasonable price as well as several unique and useful functions not found in other programs. ■

by Shay Addams

How to Solve an Adventure

News and opinion from a leading explorer of those fantasy realms called adventure games.



ED SAUK

It's late summer—the "Dead Zone" for computer game releases—as I scramble to meet my deadline, and there haven't been enough new games or conversions to fill a paragraph, let alone this column. So I'm going to devote this month to some ideas on how to solve adventure games, specifically text and graphic adventures like the Infocom and PolarWare games. (Next month I'll focus on the idiosyncracies of role-playing games.)

There have been countless articles on this subject, but they all seem to offer the same advice: draw a map, examine everything and look for clues in the text and pictures. Instead of rehashing these guidelines, I want you to consider some general concepts.

Calling Mr. Spock: Is This Logical?

If you're going to solve a puzzle-oriented adventure, you have to think logically. But the problems reflect the logic of the designer, which turns out to be quite convoluted in many cases. (Let's face it, anyone who spends most of their time chasing bits and bytes around definitely has a strange perspective on life and logic.) One of the first steps in developing your "adventure logic" is to recognize the style of logic a designer uses in his or her game. Does it employ classic logic or a more abstract style?

Designers like Michael and Muffy Berlyn devise puzzles based on the cut-and-dried logic of the classical school, problems that are clearly based on the laws of physics. Consider this predicament from *Infidel,* an all-text scenario from Infocom in which your goal is to plumb the depths of a lost Egyptian pyramid. You're stuck in a room with four doors that lead into granite-walled tunnels. When you walk through any door, a huge piece of rock slides from the ceiling at the far end of the tunnel and bars your way. Over your shoulder, you see a similar slab rising from the floor to the ceiling of the tunnel directly behind you. The only thing in the main room is a statue, and all you can manage to do to it—change things, stir things up—is to push it over and break it. The statue can be moved around, and you can pick up the head. This is truly a case of being between a rock and a hard place.

The solution lies in perceiving the relation between the slab of stone that slides down to block your path and the one that simultaneously moves in the opposite direction. If something prevented the stone from moving vertically, doesn't it follow that this might interfere with the motion of the descending slab? Just roll or push the statue to the end of the southeast tunnel and drop the head there. This stops that slab from rising, thus blocking the mechanism that controls both slabs and permitting you to enter the northwest tunnel and loot the Chamber at the far end. The same method is used to gain entrance to three similar rooms that contain treasure as well as clues that prove instrumental in solving other puzzles. This is as solid and rational a "cause and effect" problem as you'll find in any adventure game since the first adventurer set foot inside Colossal Cave.

Another clear-cut case is that of the falling elevator in *Critical Mass.* You've just figured out the magic word that sets the elevator in motion so you can leave the 49th floor of the United Nations building. After a few floors, the elevator goes out of control and starts falling faster and faster, inevitably crashing and killing you. Pushing buttons and striving for more magic words won't help, but you will survive by jumping in the air a few seconds before the elevator hits the ground floor. Puzzles like these are the sort that are more easily solved by deductive logic, also known as beating your head against a wall until the wall or your head breaks.

Other designers prefer to weave abstract skullbusters that often are not even logical at all to anyone else. These are the most difficult for some players, because their solutions often depend as much on a flying intuitive leap as on making sense of the clues that lead you to the answer. Also, they are often totally illogical, as in one dilemma in *Transylvania.* There's a ring in the basement of the vampire's castle, but nothing you can do in this room will enable you to get hold of it. Only by killing Dracula is it possible to negate the "mysterious barrier" that guards the ring. Few adventurers really figure this one out, but stumble across it after having killed the vampire. Usually a game's early problems will clue you in as to the type of puzzles you'll be up against, so you can get in the right frame of mind.

For insight into the minds of game designers, pick up an Infocom "InvisiClue" book. The graduated hints let you see how the designer planted clues as well as giving away the solution, so analyzing such a clue book reveals a lot about puzzle construction. It also helps you master the "adventure language" that many newcomers find so perplexing: half the problem is usually communicating with the program, and once you've learned how to talk to a parser you'll sail right through typical text and graphic adventures.

Tricks of the Trade

Certain techniques prove effective no matter how conventional or twisted a game's logic may be. Besides drawing a map (Gee, Gomer, I would never have thought of *that!*), you should make two lists: of the objects and of all the puzzles. Sometimes just comparing the lists is enough to get those wheels turning. Consider combinations of objects as well as individual ones. Can you use two things to construct a third object that will do the job, the way a lever fashioned by tying a rake to a hoe with your shirt (to move the boulder)?

In addition to scrutinizing and analyzing each location and object, it's often important to comprehend the significance of unusual scenes and situations. Ask yourself, "why?" when you discover the huge crater in *Sorcerer.* What created it, and how does it fit in with finding that pinhead Belboz? In *Zork I*'s "platinum bar"

Continued on page 111

1989 Graphics Contest

COMMODORE 64 & AMIGA

Commodore Magazine is sponsoring our fourth annual Graphics Contest. Two categories are available for aspiring Commodore artists: Commodore 64 and Amiga. Winners will receive a cash prize, and the winning graphics screens will be published in the June 1989 issue of _Commodore Magazine_.

COMMODORE 64 CATEGORY PRIZES

Grand Award: $500 and publication in *Commodore Magazine*
Five Runners Up: $100 and publication in *Commodore Magazine*
Honorable Mention: Publication in *Commodore Magazine*

AMIGA CATEGORY PRIZES

Grand Award: $500 and publication in *Commodore Magazine*
Five Runners Up: $100 and publication in *Commodore Magazine*
Honorable Mention: Publication in *Commodore Magazine*

GRAPHICS CONTEST RULES

1. This contest is strictly for amateur artists. Anyone who derives more than 10% of his/her annual income from the sale of original artwork is ineligible.
2. Employees of Commodore Magazine, Inc., Commodore Business Machines, Inc., Commodore Electronics Ltd., Commodore International Ltd., their advertising and promotional agencies and their immediate families are not eligible to enter this contest.
3. Each entry must be wholly the product of the developer in whose name the entry has been submitted. Copyrighted images are not eligible. This includes record album covers, movie figures, famous paintings and cartoon characters. Outside assistance is expressly prohibited and will provide cause for disqualification.
4. A maximum of two screens per person is allowed. You may submit either two screens for one computer or one screen for each computer. If a contestant submits more than two screens for consideration, all of that person's entries will be invalidated.
5. All entries must be submitted on disk, 1541 format for the Commodore 64 and 3.5-inch format for the Amiga, with the following marked clearly on the disk's label:
a. Contestant's name, address and phone number
b. Picture title(s)
c. Graphics package or programming aids used to create the graphics
d. The words ''GRAPHICS CONTEST''
A photo of the screen display or a printed copy of the screen does not constitute an acceptable entry.
6. All entries must be postmarked no later than January 31, 1989. Mail to: *Commodore Magazine*, 1200 Wilson Drive, West Chester, PA 19380, ATTN: GRAPHICS CONTEST.

GENERAL CONDITIONS

- Graphic screens are judged on originality, creativity and best use of the computer's unique graphics features.
- Entries will be judged by the staff of *Commodore Magazine*.
- Make sure your mailer will protect your disk from damage. Affix sufficient first-class postage. Mail your disk and the official entry blank to the address shown above. *Commodore Magazine* accepts no responsibility for lost or damaged entries.
- Entries will become the property of *Commodore Magazine*, which reserves the right to adapt, use or publish all entries received. No entries will be returned, so be sure to make a copy of your entry before you submit it to the contest.
- Non-winning entries will not be acknowledged. Winners will be notified by March 15, 1989. Taxes on cash prizes are the winners' responsibilities.

(PLEASE PRINT)

Name ______________________
Address ______________________
City ______________________
State ____________ **Zip** ____________
Phone (____) ____________ **Age** ____________
Signature ______________________
Parent's Signature ______________________
(If Contestant is Under 18)

Picture Title #1 ______________________
Computer ______________________
Graphics Package/
Programming Aid Used ______________________
Picture Title #2 ______________________
Computer ______________________
Graphics Package/
Programming Aid Used ______________________

ALL ENTRIES MUST BE POSTMARKED BY JANUARY 31, 1989. MAXIMUM 2 SCREENS PER CONTESTANT.

by Robert W. Baker

Bulls & Bears

Explore the inner workings of the Q-Link telecommunications service with network pro Bob Baker.

Before we get started, I should point out that November marks Q-Link's third anniversary, and a number of special events are being planned to celebrate the occasion. Unfortunately, my lead time for this column didn't leave me enough time to get all the details, so be sure to check for special announcements on the system. Happy birthday, Q-Link!

Bulls & Bears

Way back in February I mentioned the new online stock market service when it was first introduced. Well, there's now an online game that utilizes the daily real life stock market information from the StockLink service. In Bulls & Bears players compete with other subscribers to see who can accumulate the most wealth in a given period of time.

Each game typically lasts for an entire month, with each player getting an initial stake of $100,000 to play with. Each day, all of the portfolios are re-evaluated and the top ten players are posted so you can see how you're doing. At the end of the game, the top player wins a prize with the runners up usually getting free plus time. Everyone's account is then reset to $100,000 and the game restarts for another month.

You choose your own screen name when you sign up for the game. A game portfolio is then created for you with your starting $100,000 game money. You then use this play money to trade stocks or options however you choose. All transactions are handled in the StockLink service just as if you were making real transactions.

When you enter an order to trade, it is executed immediately at the actual current market price. Prices are taken from the closing price of the market on that day. Your game portfolio is automatically updated, and your cash balance is adjusted accordingly—reduced for buys and increased for sells. A representative brokerage commission is subtracted on each transaction just as in real life.

You accrue interest on your current cash balance on a daily basis. You also receive dividends as they are paid on the stocks in your portfolio. When there are stock splits or stock dividends are paid, your records are updated automatically. You use the same menus and functions used for real trading in StockLink, and everything is geared to simulate real-life trading as closely as possible.



ED SAUK

The rules are simple: You can only buy securities if you have sufficient cash in your account to cover the transaction plus commissions. Likewise, you can only sell securities that are currently in your portfolio. To help provide realism, there are certain rules governing the number of shares and options you can buy or sell on a daily basis. Some limits are based on actual trading volumes from the real marketplace.

There is a full set of rules available online in the StockLink section of News and Info. If it sounds confusing, don't worry about it. The system always confirms that you're actually making game transactions and not *real* buys or sells.

StockLink is also a service that is used to actually purchase stocks and options by some Q-Link subscribers, so you'll find lots of menus that are not involved in the game. However, complete descriptions and samples of all the menus you'll need to play the game are in the Bulls & Bears area. All the other menus in the StockLink area can be ignored while you're playing the game.

Users who have real portfolios and actually use StockLink for real transactions can still play the Bulls & Bears game without confusing the system. Your game portfolio does not interact nor interfere with your real or shadow portfolios.

By the way, be sure to check out "The Exchange" message board in the Bulls & Bears area. You'll find all sorts of tips and hints, plus personal market or investing views from other subscribers. Just don't forget to read the Disclaimer message, and keep in mind that the information provided is entirely personal opinion.

Women Today

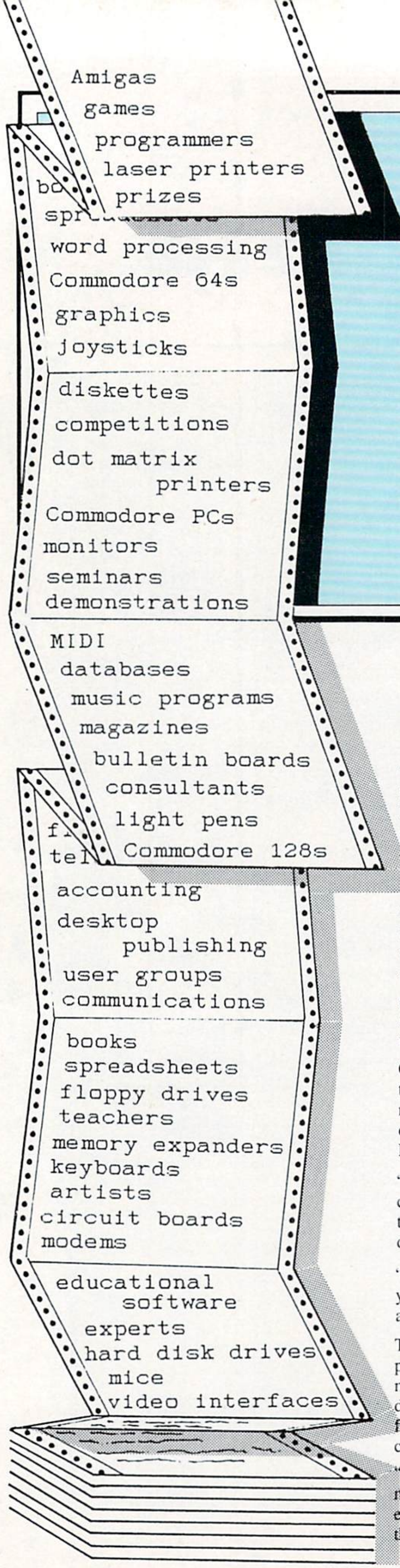
The new Women Today area appears in the Learning Center and in the Just For Fun's Family Center. This area is hosted by a professional feminist, Lee Chiaramonte, who is a consultant to the Ms. Foundation for Education and Communication, Inc. Here you can expand your definition and understanding of women, of women and men, and their '80's lifestyles.

Lee lectures to universities, women's organizations and political groups on Affirmative Action, domestic violence and sexual harassment, women and confidence, team excellence and assertiveness training. She provides a new article each month along with a book list of selected readings. There's even a profile of each of the suggested books in a Books in Brief section.

Other activities in this area include quarterly surveys and occasional contests. The surveys are used by Lee to help her better understand your views regarding women's issues. Previous contests included a $500 scholarship that was awarded in an essay contest sponsored by Q-Link back in September. You'll also find information on special events and the regular monthly forums held by Lee in the People Connection Auditorium.

I've always solicited reader input on suggestions for this column and BrianD5 recently took me up on my offer. He suggests subscribers take a little time to look around in the various departments, without going into the plus time areas, to see how much *free* information is actually available online. Don't forget the help files for each area, the Commodore Support Center, and much more. Plus, remember you can save any of this information to disk using the F3 function key and print it out later for future reference.

If you have something you want to share with other users, or any comments or suggestions for this column, please let me know. I'm online almost daily, and you can reach me via E-Mail to RBaker. I should clear up one thing, however. Some people have been trying to send direct online messages when I'm online and usually find that I'm not responding. If this happens, I'm not ignoring you on purpose, but simply busy with updating information in my section. It's usually better, and easier, to communicate with me via E-Mail or the New Product Information message boards.



Latest News From

THE WORL
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America's first World of Commodore

The computing event of fall

The first World of Commodore show in the United States gives computer users a unique chance to see, try out and buy some of the most fascinating computer equipment available today. It's all under one roof in Philadelphia for four days — thousands of products, exciting demonstrations, provocative seminars and workshops led by top experts in home, business and educational computing.

The computer extravaganza sponsored by Commodore Business Machines is shaping up as the hit of the fall.

With nearly 100 confirmed exhibitors so far, The World of Commodore promises an unprecedented selection of hardware, software and accessories for Commodore's wide range of computer systems.

Computer users can take advantage of the opportunity for incredible bargains and first-hand experience with amazing new products sold and demonstrated at the Philadelphia Civic Center from November 3 to 6.

"The World of Commodore is one of the first consumer-oriented computer shows of its kind in the Philadelphia area," says Commodore president Max E. Toy.

"Computers have come a long way in the last few years and nowhere will this be more apparent than at our show."

The strong educational tradition in the Philadelphia area is ideally suited to The World of Commodore, says Toy. He points out that many students, from kindergarten to graduate school, are familiar with Commodore computers in their classes.

"Our show will accommodate students who are not yet computer literate as well as those experienced users seeking even more information about their Commodore computers."

It's a parade of exciting products

Visitors to The World of Commodore will discover innovative products for their businesses, homes, schools and creative endeavors.

Commodore Business Machines leads the parade of products with hardware and software for the exciting Amiga family, the ever-popular C-64/128 computers, and Commodore's PC line.

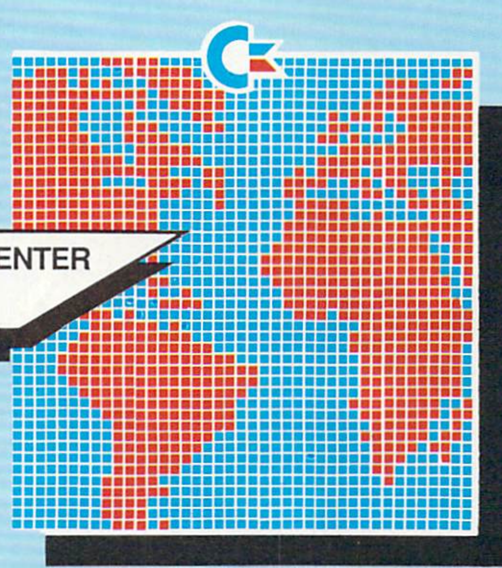
Commodore is particularly proud of presenting the most innovative computer games on the market. The World of Commodore will showcase the latest games on the C-64/128 and Amiga machines .

Other leading manufacturers and distributors will present products compatible with Commodore's computers. Hundreds of brands of software will cater to Amiga, C-64/128 and PC users. Disk drives, many brands of printers, joysticks, and countless other accessories will be displayed and sold.

Visitors will be able to create their own professional-quality music videos, graphic art and video Christmas cards. The entire show is hands-on.

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PHILADELPHIA CIVIC CENTER
NOVEMBER 3 – 6, 1988





The World of Commodore

Philadelphia Civic Center
Philadelphia, PA

Thursday, November 3 10 am—9 pm
Friday, November 4 10 am—9 pm
Saturday, November 5 10 am—6 pm
Sunday, November 6 10 am—6 pm

Adults $10.00
Students & Seniors $8.00

Admission price includes seminars and stage presentations

Produced by The Hunter Group (416) 595-5906
in association with Commodore Business Machines

Free seminars, demonstrations

Showgoers can get more than their money's worth from The World of Commodore by attending the seminars alone.

The seminars, which are free with admission to the show, demystify computing, demonstrate new and innovative products, and educate users at all levels of experience.

Where else can a consumer have the Amiga explained, learn computer animation, compare music packages, and question experts on desktop publishing — all in one day?

Sessions run continuously throughout the four days of The World of Commodore.

They're all at World of Commodore

They're all at The World of Commodore.

Commodore Business machines has a giant display of exciting hardware and software.

Third-party producers are showing their disk drives, printers, software, accessories and computer publications.

Retailers are selling a wide range of Commodore and related products.

User groups are offering advice and assistance.

Among the confirmed exhibitors to date are Sublogic, Quantum Link, Gold Disk, Actionsoft, Supra, Timeworks, Micro League Sports, Comspec, RGB, New Tek, Brown Wagh, Oxxi, Compute!, ASDG, Infinity, New Horizons, Abacus, Amazing, ANCO, Ax, Burocare, Comp-U-Save, Expert, Free Spirit, Golden Hedge, Haitex, Mitchell Ware, Progressive, Ready Soft, Soft Logik, New York Camera, Precision, Software Hut, Software Visions, Spirit Technology, Guitar Connection, Top Tech, PIM Publications, Amiga World, Bri-wall, Chip Level Designs, CW Communications, First Row, Resources, Softdisk, Soft Tech, Software Support, Southern Technologies, The Disc, Unison World, Great Valley, Hillside, RUN, Michtron, Micro Illusions, AM News and Commodore Magazine.

Cinemaware in Search of Interactive Excellence

by Russ Ceccola

Ever since the advent of the Commodore Amiga, software developers have tried to transform it into a business machine, a home productivity tool and an entertainment system. Indeed, the Amiga has performed excellently in all of these capacities. However, none of these areas of computer usage has pushed the Amiga further than the wealth of entertainment software. Products in this category have been constantly evolving, from the simple games of the past to the highly complex and innovative game worlds and systems of the present. There is currently no end in sight to the new things that designers will dream up.

One group of "dreamers" has been at the forefront of the entertainment software market for the Amiga and other computers (including the Commodore 64) from its very beginnings. Starting with *Defender of the Crown,* Cinemaware has grown from a fledgling in the software industry to a highly mobile and creative force dedicated to bringing home computer users the best games that their machines can support. Calling their software "interactive movies," Cinemaware has shown that the Amiga and interactive games can do more than take input from a player and display the results.

Cinemaware products take the game enthusiast directly into the world of the game, presenting state-of-the-art graphics and sounds as movies on the much smaller "screen" that is your monitor and offering unique experiences to those players expecting more from their personal computers. I recently had a chance to speak with Robert Jacob, president and creative director of Cinemaware, and John Cutter, in-house producer of all of their titles. We talked about Cinemaware's goals, future direction and, more importantly, their three newest blockbusters: *Lords of the Rising Sun, Rocket Ranger* and *TV Sports: Football.*

A Successful Gamble

Cinemaware was started in January of 1986 by Robert Jacob and his wife Phyllis in an attempt to capitalize on the release of the Amiga computer's brand new market and to bring the home computer user something entirely unique. Originally, the company began with only Jacob and his wife, (currently chairman and chief executive officer) as employees. Now there are 45 people working for the company. "Cinemaware has been profitable from day one," Jacob boasts of their successful gamble.

Jacob was an agent representing software developers before he started his company. It is through this line of work that he met Kellyn Beck (formerly spelled Beeck—we'll get to that story later) at Epyx. Beck was the software acquisitions guy for Epyx and was introduced to Jacob when he bought *Chipwits,* a program that Jacob was representing. It was this initial meeting that later set the stage for Beck to be the primary designer of *Defender of the Crown,* Cinemaware's first game. After leaving Epyx, Beck went on to become a TV weatherman in Portland, Oregon and is now an independent designer in the Vancouver, Washington area.

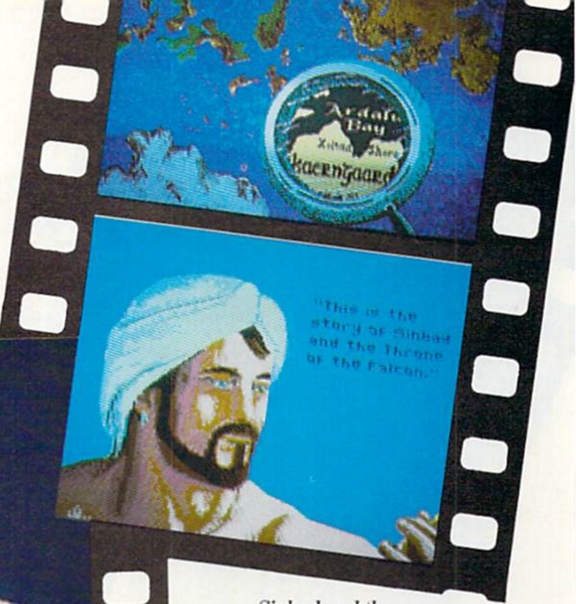
Jacob tells how the idea behind Cinemaware originated: "I had an idea that there weren't going to be too many 12-year-old kids who were going to be spending a couple of thousand dollars on a new computer system. Therefore, if you assume that you're going to have an adult audience buying the thing, it made sense for us to re-think what entertainment software should be on a 16-bit machine for this adult market." Jacob wasn't happy with a lot of the games available for home computers and tried to find

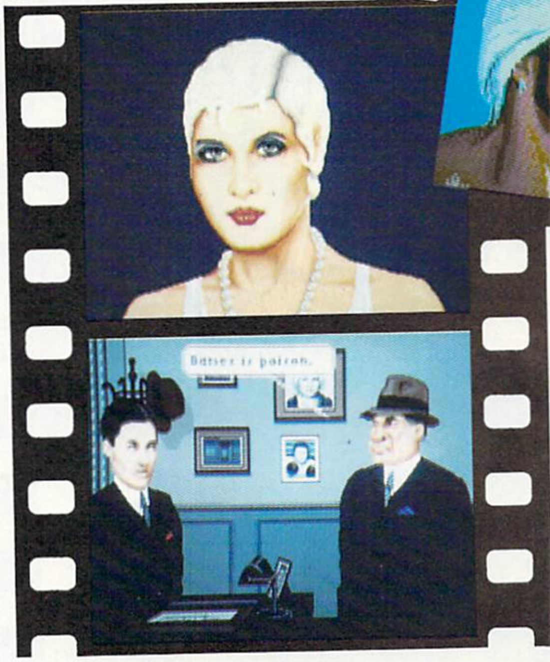


S.D.I.
(Amiga version)

Defender of the Crown
(Amiga version)
(64 version)







Sinbad and the Throne of the Falcon
(Amiga version)
(64 version)

The King of Chicago
(Amiga version)

a new angle from which to tackle his challenge.

It was then that he happened upon the idea of making "interactive movies" for the Amiga. He stated, "We felt that with the graphics and sound power of the Amiga, using movies as inspiration would definitely be able to give us a perceptible niche in the market place." It sure did, as sales and popularity of Cinemaware's products show. From this point, the newcomers in the competitive market needed someone to support them in their endeavors and bring their dreams to life. Along the way to this goal, Cinemaware picked up John Cutter, the in-house producer and member of the Cinemaware team since July of 1986. He used to be with Gamestar and was responsible for *Two-On-Two Basketball* and a number of other games for Gamestar.

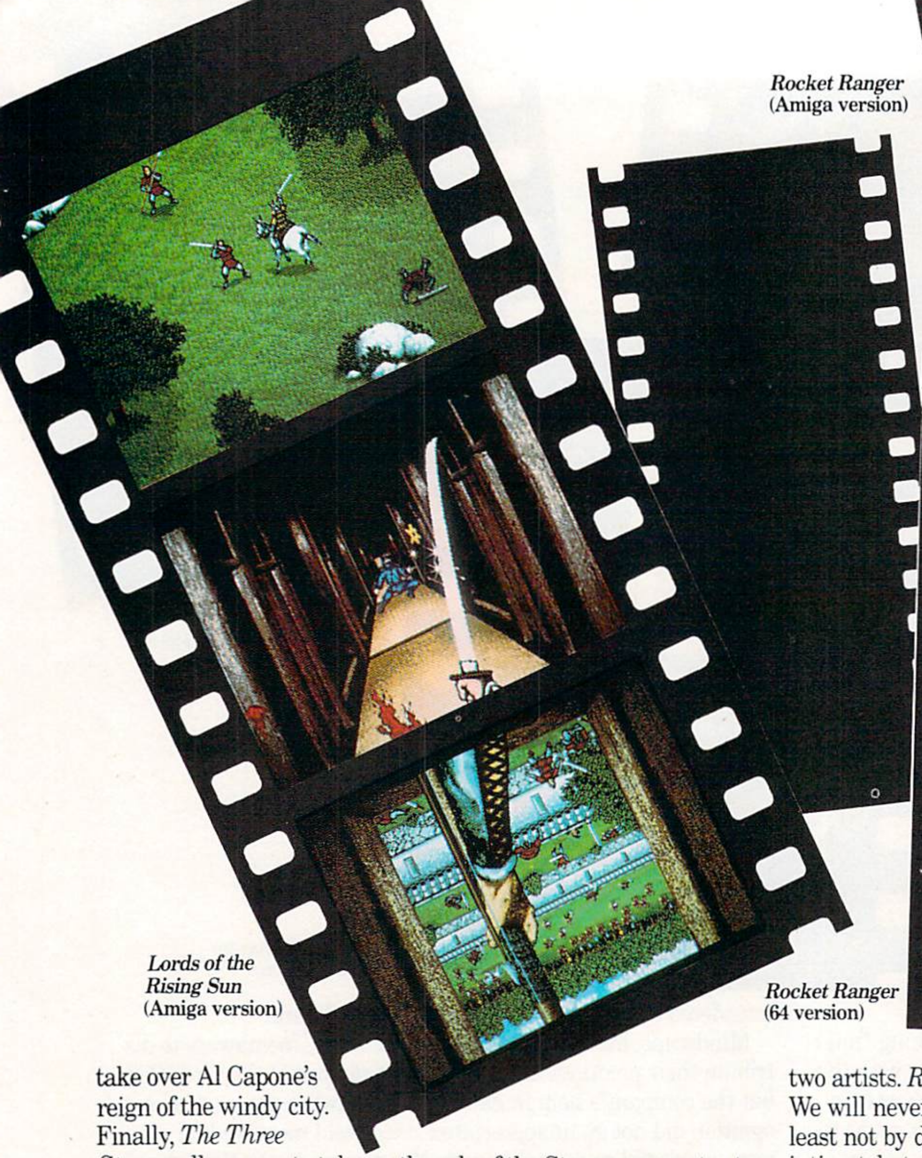
Kellyn Beck jumped aboard the bandwagon at this time as the "director," or designer of *Defender of the Crown* and the project was under way. One neat thing about all of the Cinemaware titles is that their packages, manuals and even the disks are all suggestive of the idea of "interactive movies." The disks are called "reels," the people involved are given credits, and the earlier boxes, when opened, looked like popcorn boxes. These touches are part of the phenomenon of Cinemaware and convinced people that the games really were "movies."

On their first attempt, Jacob wanted to tackle a heroic adventure game "based upon knights in shining armor and damsels in distress. I actually contracted with Kellyn to design a game based on those premises. We have a similar arrangement for *Rocket Ranger,* with the original story line." The result was the highly popular, graphically rich *Defender of the Crown,* which featured laying siege to a castle, sword fighting and jousting as arcade sequences, scenes played as if from a movie and strategy that involved fighting for control of all of the land areas of England à la Risk. *Defender* earned many great reviews and was considered a new form of entertainment software.

Mindscape, Inc. struck an agreement with Cinemaware to distribute their products. That agreement ran out in April of 1988, but the company's help in gaining Cinemaware games wide recognition did not go unappreciated. Jacob told me, "We had a very wonderful relationship with Mindscape. At the time the company was started, we talked to all of the major publishers. We interviewed them all and selected Mindscape because I liked the people, and they liked what we were doing. Their distribution of our products gave us that initial push we needed, and I am grateful to them for that chance." Even without Mindscape's help, Cinemaware would have done well, because what came out of the doors of that company was something that the software world had never before experienced.

Since *Defender,* five other products have been released from Cinemaware: *S.D.I., Sinbad and the Throne of the Falcon, The King of Chicago, The Three Stooges* and the hardware cartridge for the Commodore 64 and Commodore 128 called Warp Speed. The three current releases have far surpassed any of the technology, graphics and stories of the four previous "interactive movies," and if they're any indication of the future of Cinemaware, the software world will be in disbelief. All of the titles have lots of things to keep you busy, with *The King of Chicago* requiring one megabyte of memory to play and an external 3.5-inch drive for the Amiga (the game is not available for the Commodore 64, although the others are).

S.D.I. takes place in outer space, as you try to save the United States from thermonuclear destruction. *Sinbad* places you in the role of the popular fictional sailor trying to aid a princess in transforming her father back to his human form, instead of that of a falcon—the result of an evil spell. *The King of Chicago* puts you in the role of Pinky Callahan, an ambitious mobster out to



Lords of the Rising Sun (Amiga version)



Rocket Ranger (Amiga version)



Rocket Ranger (64 version)

take over Al Capone's reign of the windy city. Finally, *The Three Stooges* allows you to take on the role of the Stooges as you try to save Ma's orphanage from an evil banker. As you can see, you play actual roles as characters in Cinemaware's games, which gives them their appeal to computer players of all ages. Each of these games firmly supports the premise of "interactive movies."

Warp Speed is a unique product in that Cinemaware hadn't planned to enter the hardware market. But after seeing what the cartridge could do, Jacob decided that they must have it. Created by The Alien Technology Group, Warp Speed is an excellent cartridge-based utility that performs disk access at ten times the normal rate of a Commodore drive. It also includes a DOS wedge, built-in machine language monitor, sector editor and many other functions. Obtained by chance, Warp Speed is an asset to Cinemaware and has proven itself to them via its sales.

The Creative Process

As good as these products are, Cinemaware has topped them all technologically with the three new games. But, before we look at the new releases, some insights into the operation of Cinemaware Corporation are necessary to further understand their efforts.

A game usually starts with a discussion of the idea, storyboard of the plot and design document for the programmer to follow. Jacob relates, "A typical project has two programmers, a producer, a designer, someone doing music and sound effects and two artists. *Rocket Ranger* took about five man-years to develop. We will never do a project as big as *Rocket Ranger* again—at least not by design." This team of professionals works together intimately to make sure that everything clicks in the game. Just like a producer of a motion picture, it is John Cutter's job to make sure all the pieces fit together. In particular, he makes sure that the programmer has the art to move around and that the artist has sequences of code in which to logically fit the art and other similar questions. Cutter also handles creative decisions, making critical choices about what is included in a game or not.

All graphics for Cinemaware products are done on an Amiga, even the graphics for other computer systems. *DeluxePaint II* from Electronic Arts is used to create the artwork, and the images are ported over to all of the other computers. In the case of *S.D.I.*, the artwork for the Atari ST version of the game was originally drawn on the ST for convenience. Unfortunately, the graphics were later deemed not good enough, and the Amiga was then used to upgrade the graphics. The results were clearly noticeable—enough so that graphics for all future products were done on the Amiga.

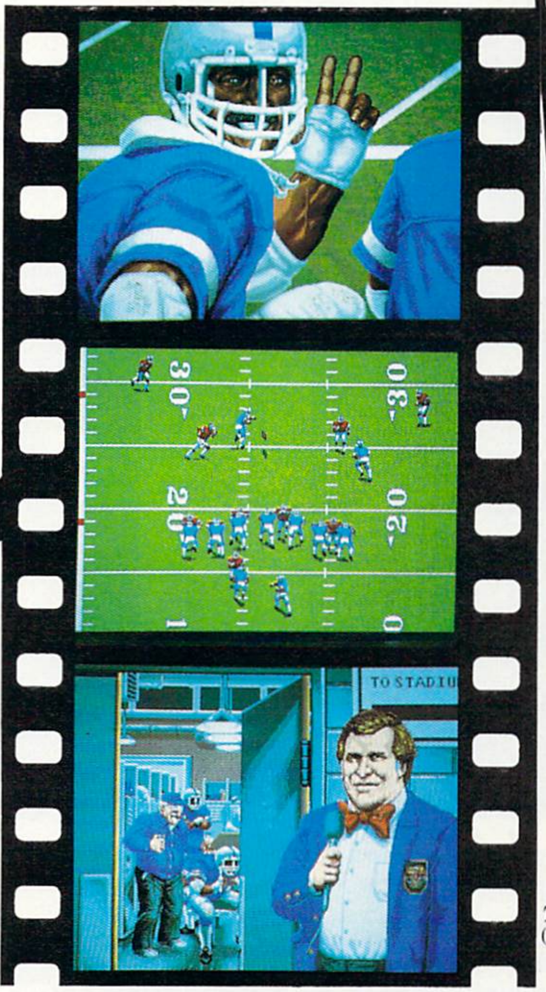
A Cinemaware "interactive movie" consists of an intelligent story line that forces the player to make important strategic and logistical decisions based upon the current game situation and then better that situation through the play of arcade sequences. In the case of *Defender of the Crown*, you gain land by laying siege successfully to a castle. In *The King of Chicago*, you gain respect by making a successful bombing run. The arcade sequences are definitely a high point of any Cinemaware product and serve to draw you further into the game.

The Three Stooges
(64 version)





The Three Stooges
(Amiga version)



TV Sports: Football
(Amiga version)

Jacob claims, "The purpose of the arcade sequences is to move the story along. The arcade elements make sense, as opposed to other interactive games that just include arcade games for the sake of having a game in the product. Our arcade sequences give meaning to the story and are essential in advancing your place in the story and success in your goal." I'll agree with Jacob on that one, for all of the arcade sequences I've seen in Cinemaware games have been a direct result of the plot and necessary to finish the game. There is no wasted memory space for these joystick jugglers.

Aside from integrating the storyboard, arcade games, graphics, sound, plot and decision points (Cutter's job), the next important step in product development is the playtesting. Cinemaware does extensive playtesting and code-condensing to make sure that everything is okay and can fit on the smallest number of disks, using the maximum amount of space on those disks. These last steps of product development result in smooth game plays and disk access. A case in point for examination is the hit game, *The Three Stooges*.

The object of the creation of *The Three Stooges* was to maximize the use of the license for the Stooges. Jacob states, "We wanted to take everything directly from the Three Stooges movies and shorts." This is evident in the large number of digitized pictures and recorded sounds and dialogue used throughout the game. In addition to copying these things right from the movies and shorts, the arcade games in *Stooges* are based on the plots of some of the most famous Stooge shorts. The hospital scene features the famous "Calling Doctor Howard, Doctor Fine, Doctor Howard" antics in *Men in Black,* the boxing game comes from the *Punch Drunks* short, and the pie fight is reminiscent of *Hoi Polloi.* In any case, the entire game is really special because of the use of actual Stooges material, and Jacob assured me that Cinemaware will also be using licensed products in the future in the same capacity and with the same thoroughness. Cinemaware's crowning achievement with *The Three Stooges* was the letter and visit from Moe Howard's daughter, Joan Howard Maurer, who absolutely loved the game.

Most of the Cinemaware games have had similar results. But you may ask how the complexity of the Amiga and everything it can do can be taken down to the level of the Commodore 64 and other computers. Jacob provides the answer to this pressing question: "On the Commodore 64, we use fastloading, and we have been able to do a lot of things that people didn't think possible as far as loading bit-mapped images in and out of memory and doing it with music and stuff. We're extremely committed to the Commodore 64 market—anybody who would buy a Nintendo system and ignore Commodore is nuts." Cinemaware has certainly taken the time to make sure that the eight-bit machines use their full abilities in order to process an interactive game. This can be seen in both *Defender of the Crown* and *The Three Stooges* for the 64, as well as all the other games. *Defender* has additional graphics and uses the same scenes as the Amiga. *Stooges* is incredibly close to the Amiga game and features the arcade action at the same breathtaking pace. These two examples are typical of all Cinemaware products—the games make the best use of the computers for which they were written. No matter what version you buy, expect the same high quality.

Continued on page 106



While Commodore 128-specific software in the entertainment and educational areas has been slow to materialize, business software developers are taking advantage of the Commodore 128's unique features. I'll try to fill you in on the more exciting offerings. As we take this quick software tour, keep in mind that this is not a complete roundup of all 128 software on the market. To list all the existing software titles would take a book. Instead I'll try to mention those I either use, have had a chance to evaluate and found unique, or have at least seen demonstrated.

Have you heard a muffled grumbling sound coming from your 128? Listen quietly and you may hear your disk drive murmur, "Feed me!" I've heard reports that some of those little critters are actually going hungry because their owners can find nothing good to stick in their mouths. There can be but three reasons for such an inexcusable situation (1) not enough software is being marketed for the 128, (2) 128 users aren't aware of the existing supplies available, or (3) owners aren't happy with the type of programs that are being offered.

When I bought my first computer, a Commodore 64, in 1982 there was not a single (and I mean none, zero, zilch) commercial software package on the market for it. I called software dealers around the country for over three months before I found two commercial titles, *Lunar Lander* and *Money Madness*. I bought both, sight unseen. I wanted something other than public domain software, and those two were all I could find. I had to wait another four months before I could get a copy of *WordPro 3+64* (the first professional-quality 64 word processor, retailing for $85). All the critics were predicting the Commodore 64 would die of malnutrition during 1982-83 because no software developers were supporting it.

The critics were wrong, and those three programs turned out to be the first trickles of a flood of software designed specifically for the 64. I read somewhere that there are over 6000 commercial titles for the 64 now, a numbing number. To illustrate how many 6000 titles are, imagine using your computer 12 hours every day, five days a week without taking any vacation, holidays, sick days, etc., during which time you only turn the thing off on the weekends, or to eat and sleep. At the rate of using one program per hour, it would be nearly two years before you had a chance to load the same program twice. That is a deluge of software.

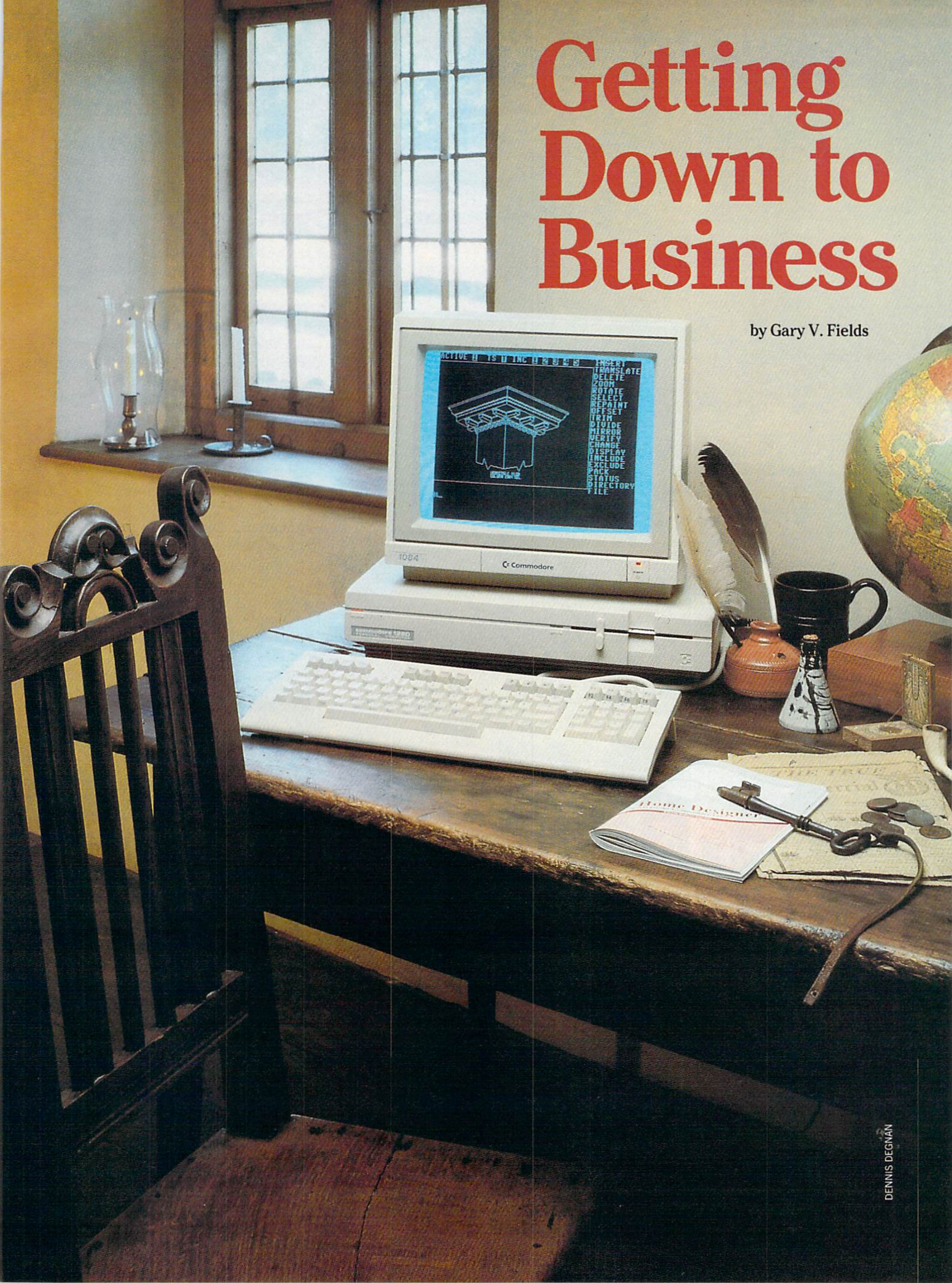
But three years after the 128's introduction, some users are asking, "Where are the 6000 titles for the 128?" And entertainment software distributors are quick to answer—they're already there, just boot your 128 in 64 mode. While that is true, it doesn't satisfy many 128 users who want unique software titles for their system; they want it displayed in 80 columns and operating at twice the speed of the 64.

Unfortunately software shortages are nothing new—they appear each time a new computer is created. As soon as a new system is released, software companies must decide to either (1) pull programmers off existing projects and rush software to support this new market, (2) hire more programmers, or (3) hold their support until they are sure the user base for the new system will be large enough to warrant the shift. Oddly enough, developer support for the 128 seems to have polarized.

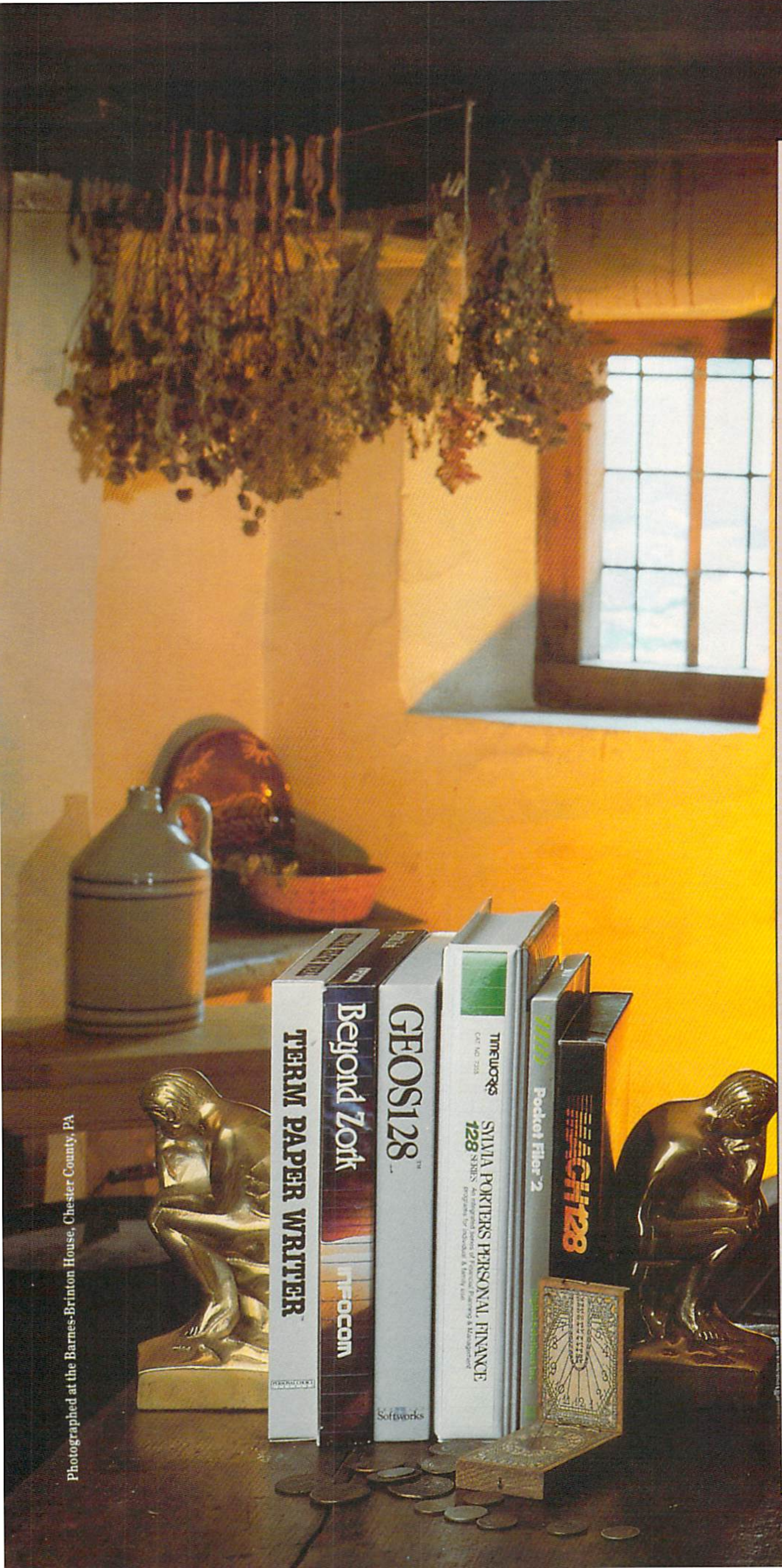
About one third of the software industry (business) quickly jumped to support the system, while the rest (entertainment and educational) haven't committed to 128 mode software yet. And there is sound reasoning behind each camp's decision. Lets look at each side's reasoning for the support they are giving the 128 and what all of us 128 users can expect in terms of software from them in the future.

Getting Down to Business

by Gary V. Fields



DENNIS DEGNAN



Photographed at the Barnes-Brinton House, Chester County, PA

Because the 128 (in 64 mode) will run 64 software, most of the entertainment and educational software distributors have not developed software specifically for the 128. Instead they continue to develop for the 64 market and view the 128 as an extension of that audience. This makes good business sense, since the 64 market is huge (business almost always looks for volume sales), and every 128 has a 64 tucked inside. So in their view, when they develop for the 64 they are at the same time developing for the 128. But this has irritated some 128 users who had expected to see a flood of entertainment software developed for the 128—in 128 mode.

For most of us, the 128's speed and 80-column display is what attracted us to it, and we expect our software to employ these features. These improvements made the computer a professional tool. Business requires data and answers in a hurry and in most cases wants it displayed in 80 columns (a format made standard when typewriters and 80-column sheets of paper drove the business world). To satisfy everybody, Commodore gave the 128 two display modes (40/80 column), made it fast (2 MHz) and added the 1571 and 1581 quick disk drives. On-board memory capacity has always been an important consideration with business applications. So while 128K was considered healthy in 1985, by 1987 the business world was demanding 512K, so the 1750 RAM expansion unit was introduced to satisfy that need. (It makes you wonder how those programmers got along in 1982 when everyone thought 48K was an enormous amount of memory.) Over the past three years the 128 has acted like a business machine, and the software developers have treated it as one. So the software developed for it has almost exclusively been business or productivity oriented.

Thus, the flood of software released for the 128 cascades down a different tributary than the 64—it flows toward the business and productivity world where the computer is more often used as a tool instead of for entertainment. Let's take a look at some of the best software presently marketed for the 128.

Before I began this article I already had a solid library of 128 software. That is reasonable since I am a zealous user of the computer (with two complete 128 systems—one on my desk at home and another in my office). Over the years I've

tried to stay current with what was available for the system and what was not. By the time I collected all my notes and contacted as many software developers as my phone bill could afford, I found myself nearly surrounded with boxes of 128 software. I'll try to fill you in on the more exciting offerings from those crates and what already was in my own library. As we take this quick software tour keep in mind that this is not a complete round-up of all 128 software on the market. To list all the existing software titles would take a book. Instead I'll try to mention those I either use, have had a chance to evaluate and found unique, or have at least seen demonstrated.

Playing Around

I wish I could tell you the spring rains of '89 would also bring a flood of 128-mode entertainment and educational software, but I can't. In fact, with few exceptions all the developers I spoke with (I surveyed them at the Spring COMDEX and over the phone) hold the traditional view of the 128 as a business, not game, machine. One of the exceptions to that rule which does offer hope to entertainment-starved 128 users is Patech Software.

Most of you will recognize Patech as the company which brought *BASIC 8* to the market and later introduced the first 128 desktop publishing software, *Page Builder.* Well, the company's president, Paresh Patel, takes a broader view of the 128. Instead of viewing it as an extension of the 64, he views it as an untapped entertainment market. He has a stable of programmers chomping at the bit wanting to design, develop and market quality software, rather than just following the trail left by older, established software developers that first surveyed the market. Their survey showed that both the 64 and Amiga markets were already inundated with nearly every possible type of software package. And while the 128 has a very healthy library of business-related software available, there is plenty of empty shelf space for other types. Desktop publishing was one of the first shelves they decided to fill. But Patel said the largest and most potentially profitable market their survey revealed was for 128-mode entertainment software. Hopefully, by the time you read this, those empty entertainment shelves will begin to fill with Patech titles. And be assured, if 128-mode entertainment sales can make the cash register ring, other vendors will follow Patech's lead and try to cash in too.

Infocom, the classic interactive story tellers, recognized that the 128's 80-column display, speed and fast disk drives were perfect for their type software. So when the 128 was first introduced, and to the delight of fiction lovers, they quickly released *Trinity* and followed it with *Beyond Zork*—both text adventures. Three of Infocom's recently-announced graphic adventures, *Zork Zero: The Revenge of Megaboz, Shogun,* and *Journey* will be released only in 128 and Amiga versions.

Oddly enough, Free Spirit Software, maker of excellent DOS utility programs, does offer one 128-mode strategy game called *The Great War.* The game simulates the conflict of World War II which students of that war may find interesting—but I do not. Another easily forgettable 128 game comes from a company called Supersoft Games. It simulates the English game of cricket and goes by the title of *Graham Gooch's Cricket-128.* The problem with both games are their crude graphics and snail-paced action. If those two are the best we can expect for the 128, I would much rather boot into 64 mode for my entertainment. I mention them here only because they are two of the few strictly 128-mode games being marketed. On the other hand, Artworx was marketing an entertaining karate game called *Thai Boxing* for a while but took it off the shelves because it so closely resembled the 64 version and the company saw no need to offer them both.

Getting Down To Serious Business

If you use your 128 as a tool instead of toy, you'll have plenty to smile about when browsing the business and productivity software shelves. When it comes to business, 128 owners can hold their heads as high as anybody—bar none.

The foundation of businessware is a triumvirate: word processing, spreadsheet and database management.

Word Processing

From the very beginning, the word processors released for the 128 have been excellent. *Wordpro 128* was the first I used, and I still like it today. It only got better (and cheaper) with age and the inclusion of *Filepro 128* with the later versions makes it a double value. *Wordpro 128* was quickly joined by *Word Writer 128* with screen displays which show text exactly as it will print—including underlining, bold type and italics. Plus the program has the best speller I've seen on any system.

FontMaster 128 allows the user to mix wonderful fonts and type sizes as well as print columns, and *geoWrite Workshop 128* (requires GEOS 128) goes beyond all of them and lets the user include graphics.

But for pure power and flexibility my favorite 128 word processor is *Superscript 128.* The two of us have worked through many a sleepless night trying to beat a deadline, and if either of us failed to keep up our end of the load, it was not the word processor. Its speller is not quite as friendly as *Word Writer 128*'s, but it is large and picky enough to prevent me from embarassing myself to often.

After going through one name change (*Paperback Writer*) and two revisions, *Pocket Writer 2* is a solid writing tool which any serious writer should consider. It is one of the best what-you-see-is-what-you-get processors yet developed.

Spreadsheets

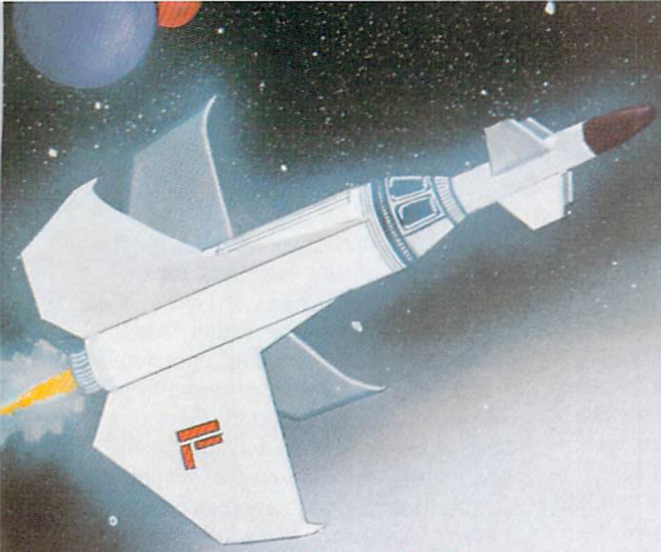
Nothing says serious business louder than a professional spreadsheet, and again 128 users are blessed with some excellent choices—all with plenty of room, standard spreadsheet features and speed. I've tried dozens of spreadsheet programs for systems both smaller and larger than the 128, but my all-time favorite remains *Vizastar 128.* The program is not only excellently designed and hefty in size, but comes with an integrated database program. Users needing both should consider this duo.

For GEOS 128 owners, the logical choice is *geoCalc 128.* It is one of the newer spreadsheet programs and not only looks impressive but performs that way.

When shopping for a spreadsheet, it is a good idea to consider an integrated package. And both *SwiftCalc 128* and *Pocket Planner 2* can share data with their sister programs (*Data Manager 128* and *Pocket Filer 2*). Both offer a healthy-sized matrix, but *Pocket Planner 128* offers slightly better digital accuracy (16 vs. 12). All the spreadsheet programs include the standard formulas and math features. If your 128 has expanded RAM, *Pocket Planner 128* can address it too.

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JESSE HULSE

Coming Attractions

by John Jermaine

Earlier this year, I wrote a feature called "Software Fanatics." As I worked on the project, I began to realize what that term actually meant. We're all basically software fanatics at heart. Everyone wants to know more about the software companies in general, the new titles they're releasing, and where the industry is headed as a whole. "Coming Attractions" is designed to deliver that type of information, with a few surprises thrown in for good measure. So sit back in your favorite easy chair and join me as I gaze into the future.

Access Software

64/128: If you need a little iron in your software diet, *Heavy Metal* is the program for you. It's a realistic simulation of an M-1 "Abrams" Main Battle Tank. In the real world this 62-ton monster features heavy armor plating, a 120mm Smooth Bore cannon, smoke discharge capability and a machine gun for knocking out targets at close range. The M-1 also has a maximum speed of approximately 42 mph, and it's considered the most sophisticated tank in the world today. Taking all of these facts into consideration, Access created an incredible software replica of this modern American military vehicle.

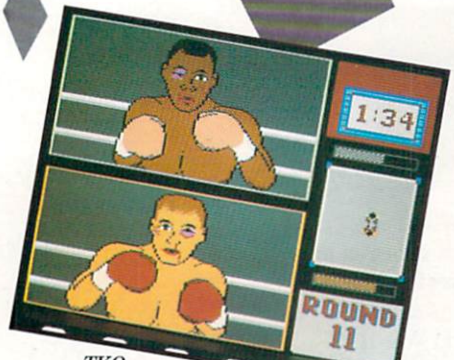
Heavy Metal, subtitled "Modern Land Combat: Volume One," is also the base program for a series of products currently under development. Accessory disks (no pun intended) may contain additional "Abrams" scenarios or possibly even new military vehicle simulations. If you're interested in this private little war, intelligence reports indicate the fighting will commence in September.

There are four screens in the game: the war room (where you set up your attack force), a view of the battlefield (which permits you to observe the current strengths and weaknesses of both sides), The simulation screen containing the tank controls,and a view through the eyes of the enemy. *Heavy Metal* takes place in Eastern Europe, where the Russians are attacking your Allied position with air strikes, artillery barrages, light armored vehicles, fast-moving gun trucks and a new breed of Soviet tank that may be your equal. The instrumentation and controls of the tank are equally impressive. Access contacted the Pentagon, in Washington, D.C., and arranged to examine the M-1 (inside and out) at the Michigan plant where they're manufactured.

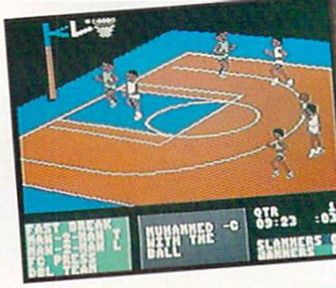
Look for "Flying Fortress" simulation next spring. This simulation puts you in the U.S. Eighth Air Force performing precision daylight bombing runs against Nazi Germany during World War II.

First there was *Leaderboard Golf.* Then *World Class Leaderboard* hit the market. Late this fall, computer golf enthusiasts can play *Ultimate Golf* (the most sophisticated *Leaderboard* product to date). This advanced program features right- and left-handed golfers, a female golfer, different penalty strokes (for hitting your ball in the water) and a nice selection of new and improved courses. *Ultimate Golf* also updates 45% faster than *World Class Leaderboard.* The background scenery has a fresh new appearance, while the game play is more accurate than ever before.

Coming in 1989: Two Amiga products have release dates in the first quarter of '89. *Echelon,* a real crowd pleaser on the 64, is currently being ported over to the 16-bit environment. This program has been rewritten from the ground up, so the programmer could take advantage of the Amiga's capabilities. It's interesting to note that this special edition of *Echelon*



TKO


Fast Break

contains new patrol zones, different puzzles to solve, and graphics that move at a faster rate of speed. Speaking of *Echelon*, *Echelon II* (for the Commodore 64) will be coming your way early next year. The guys at Access couldn't tell me very much about this top-secret project, except to say it's being patterned after the *Echelon* line of thought, and the program will probably accept optional game disks.

I also understand an incredible Amiga version of *Heavy Metal* is in the works.

Accolade

64/128: Accolade's fall lineup has something for everybody. First of all we need to talk about *TKO* (short for "technical knock out"). This unusual boxing program is a true simulation of the popular sport, where the user has to move and think like a professional fighter. The game features arcade-style action, large detailed graphics, and a split-screen perspective of things (as seen through the eyes of the boxers). All contenders have the same basic abilities, and the computer opponents will definitely give you a workout. Another interesting factor adds real credibility to the product: fighters can physically get hurt in the ring. Facial injuries (including black eyes, fat lips, swollen cheeks, and the like) are graphically displayed on the screen. If you've ever wanted to fight Mike Tyson, but you value your health, *TKO* is the next best thing.

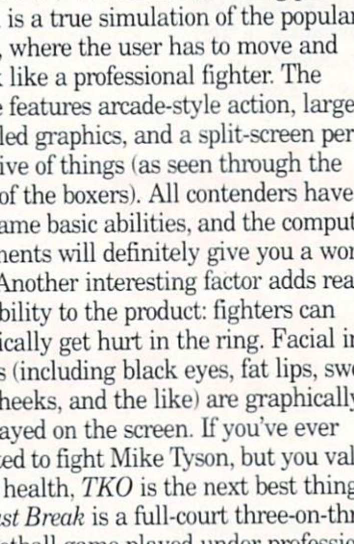
Fast Break is a full-court three-on-three basketball game played under professional rules. From the moment the whistle blows, you can hear the rhythmic bouncing of the ball and the high-pitched squeal of sneakers on the wooden floor. This basketball simulation really looks exciting because you can choose a play from a menu of offensive and defensive maneuvers, generate a play of your own, make substitutions, shoot three-pointers, perform a slam dunk, etc. The *Fast Break* interface might also seem vaguely familiar. It's primarily the same one Bob Whitehead developed for *Hardball* and *4th & Inches*.

A number of secondary features are equally important in the overall scheme of things. When the user substitutes a player, for example, he gets to see a photo of the guy (as well as his personal statistics). This type of material won't make or break the average game, but the presence of these little extras makes a good simulation stand out as something special.

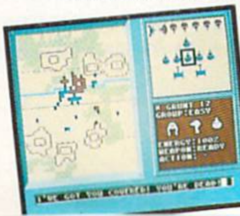
One more thing should be mentioned here: *Fast Break* is Steve Cartwright's first Accolade project. In the past, Cartwright has produced some outstanding software titles for Activision (including *Aliens* and *GeeBee Air Rally*). I want to wish him the best of luck at his new location, but with Steve's talent who needs luck?

You'd better select your favorite cue stick and "chalk up" for action because *Rack'em* is on the way. Playing this program is almost like taking a trip to the local pool hall. The disk contains five traditional billiards games: snooker, bumper pool, straight pool, 8-ball and 9-ball. If the user wants to play something different, the program features an easy-to-use bumper pool construction set and a generic game (where the consumer can play by his own rules and recreate any pool challenge known to man). *Rack'em* also has good ball action, trick shots are possible, and you have the option of re-shooting your last shot. Whenever I play 8-ball on a regulation table, I have trouble selecting the proper aim, english, and power level of a shot. All three of these variables are present in game, and they're similar to their counterparts in the real world. I think you'll agree that *Rack'em* is one of the best pool simulations on the market.

Serve & Volley



Dan Bunten's Modem Wars



Tennis anyone? If you've mastered the sport in real life, try your hand (or backhand) at Accolade's *Serve & Volley*. As the user plays the game, he actually has to learn proper ball placement, timing and stroke selection in order to become a pro. The simulation also contains three types of court surfaces, three difficulty levels, and realistic "Strobe-o-stroke" graphics. "Strobe-o-stroke" animation, in case you haven't heard of the term, is a special method of making hits and serves appear more realistic on the computer. When it comes to manipulating the ball, the player has an arsenal of three different serves and five possible hits to choose from. Other options include: single and double modes of play, playing a match or tournament, and a special Save feature. Tennis fanatics will love *Serve & Volley* because it's an authentic recreation of their favorite sport.

And now for something totally different. *Bubble Ghost* (slated to ship in September) *[Ed. Note:* Bubble Ghost *was officially released ahead of schedule at the end of July.]* isn't your standard microcomputer arcade game. It doesn't challenge the user to fly a plane, shoot some "hoops," or blast a gang of alien thugs. In fact, you don't use a weapon in the program at all. Believe it or not, your task consists of blowing a bubble through 35 rooms of an ancient castle. Each chamber of the structure contains a number of deadly traps that can easily burst your fragile bubble. The player can avoid most of these dangers, but when the going gets rough it pays to examine the objects around you. One of them might be the solution to your problem. I was also impressed with the Bubble Ghost himself. If this cute little guy blows too much, his face turns red and he coughs. Whenever a bubble is destroyed, you get a sour look from your ghostly counterpart as he stomps his foot in disgust. *Bubble Ghost* is good family entertainment and the most original program I've seen this year.

Beginning in October, *Steel Thunder* rolls off the assembly line. This unusual simulation puts you behind the wheel of


Caveman Ugh-lympics



Final Assault

three famous American tanks: the ultra modern M-1 "Abrams" Main Battle tank, an M-3 "Bradley" Infantry Fighting Vehicle, and the Classic M-60 "Patton" Tank. The program is basically *Test Drive* with tanks, where the player becomes the commander, gunner and driver of his vehicle. There are three theatres of operation to choose from (Central America, Europe, and the Middle East), and the controls were created from digitized pictures of the real tanks. *Steel Thunder* also features 24 authentic tank missions, distinctive handling characteristics for each tank and the ability to launch a conventional war against the Soviets. Military simulation people take notice: I've seen a demonstration of this product, and it really looks nice.

Electronic Arts

64/128: Some people seem to think the microcomputer software industry is nothing more than an international poker game. If that is true, EA is holding a pat hand of titles and they're preparing to rake in the chips. In September, for example, *Dan Bunten's Modem Wars* will be looking for a few good men (and women). This product is basically a football game where the players are drone aircraft (that can actually perform bombing missions), tanks, lasers, various types of missiles, etc. Everything is controlled by the two commanders, who are seated in fortifications at opposite ends of the field. Blow your enemy out of his bunker (or occupy the strategic points on the field) and the game is over.

Since the program was written to be used with a modem, you can play against opponents down the block, across the country or half way around the world. Now here's something interesting. I can run my copy of *Modem Wars* on the Commodore 64 and play someone using a different translation of the product (like the IBM version, for example). The program also features: one- and two-player modes, a practice session, multiple levels of difficulty and a variety of different games to choose from. *Modem Wars* is a new breed of military strategy game which should attract a strong following.



Heavy Metal

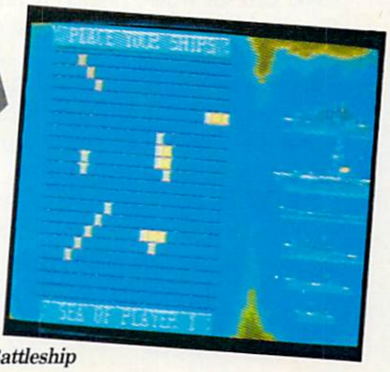
Deathlord, another product slated to ship in September, is an intricate fantasy role-playing game (with strong Oriental overtones). Your quest begins in the land of Lorn, capital of the Kodan Empire. The realm has be surrounded by a huge hostile army, and its leader (the infamous Deathlord) plans to invade the country and use it as a stepping stone in his bid to take over the empire. In a desperate attempt to stop this invasion, you gather the remaining warriors together and set off to meet your destiny.

The game features eight races of beings, male and female characters, 16 character classes (including thieves, fighters, priests, wizards, etc.), and 84 magic spells to master. Players can also travel across 16 continents in the program (where they encounter swamps, deserts, forests, tundra, fortresses, castles, ruins, temples, cities, towns and the like).

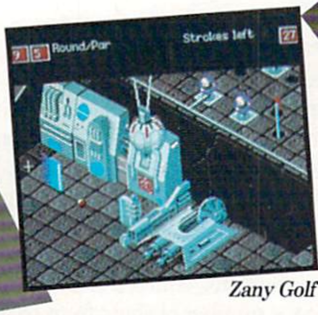
I forgot to mention the dungeons: there are 157 levels of these tricky little devils in *Deathlord.* By the way, 128 different types of monsters are expecting you for dinner along the way (if you know what I mean). It's also possible to take your favorite characters from *The Bard's Tale I, Ultima III,* and *Wizardry I–III,* and use them in your quest. EA estimates it will take over 200 hours of play to finish this scenario, so the consumer will definitely get his money's worth from *Deathlord.*

Now here's an interesting bit of news for the basketball enthusiast in the crowd: *Jordan vs. Bird: One-On-One* is scheduled for early October availability. This program is the sequel to EA's best-selling product, and it promises to be one of the hottest selling items of the season. The disk contains an "Air Jordan" slam dunk contest, where the player can perform ten different slam dunks, a Larry Bird three-point shoot-out, which challenges the user to sink a number of shots from beyond the foul line, and of course you'll be playing a little one-on-one in the game. Once in a while, a picture of Bird or Jordan will appear on the screen and comment on a particular move or shot (the same way Gen. Yeager criticizes your flying in *Chuck Yeager's Advanced Flight Trainer). Jordan vs. Bird* also features larger character graphics than the previous game and an instant replay option. Although I haven't actually seen the program, I know enough about it to say it will be something special.

As the world prepares for the Summer Olympic Games, Electronic Arts is putting the finishing touches on their own *Caveman Ugh-lympics* program (scheduled for release in October). Travel back in time to the Stone Age and participate in six humorous pre-historic events. The first contest is called the Mate Toss. Swing your mate around by the ankles (for optimum speed) and lob him or her for distance in terms of feet. This challenge might have been the inspiration for the modern day hammer throw. Fire Starting is similar to striking the match to light the Olympic Torch. The player rubs two sticks together until he can generate a fire. As you perform this task, club your opponent every now and then to disrupt his concentration. The Dino-Vault is similar to pole vaulting. Your caveman has to vault over a deep ravine, where a hungry dinosaur waits for a possible meal. Clubing resembles the art of fencing. After establishing your position during the intimidation phase of the event, try to club each other off the top of a large flat boulder. The Sabre-Tooth Tiger Sprint is similar to the 50 yard dash, while the Dino Steeplechase challenges the consumer to



Battleship



Zany Golf

ride his mount over an obstacle-strewn course where he has to club the beast to get it to jump. *Caveman Ugh-lympics* allows up to six players at a time, and every character has his or her own distinct appearance and special abilities. If you like to play multi-event programs, this one sounds like a real winner.

The Mars Saga, another fourth quarter release, is a sophisticated role-playing game taking place in 2100 A.D. Over the years, the planet Mars has become a major mining operation (staffed primarily by convicts). Three cities have already been built there: Primus, Progeny, and Parallax. A fourth city, Proscenium, is currently under construction. You are in the business of transporting supplies to these colonies, but your ship has become disabled (on the red planet) and you don't have enough money to get it repaired. After evaluating the situation, you decide to become a bounty hunter and start recruiting others to join your party.

Players can travel to each of the four cities, purchase weapons and equipment along the way, and explore the hostile surface of Mars. During the course of your bounty hunting, a great mystery begins to unfold. The mines have all shut down for no apparent reason while the city under construction is no longer communicating with the other ones. You try to solve this enigma while exploring the mines, cities and caverns of the planet. There are also bars, personal development centers, universities, computer centers, hospitals, munition stores, armories, casinos, etc. in the game. Activities include: computer hacking, recruiting, gambling and combat. Every step of the way is automapped, so the player can see where he's been, and monsters are lurking where you least expect them.

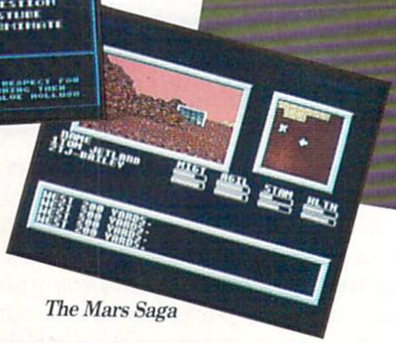
Remember you heard it here first: *Demon Stalkers II* will hit the market sometime in December. Additional information was not available at this time.

During the holiday season, *Ferrari Formula One* will be racing for the checkered flag on a monitor screen near you. I really liked the Amiga version of the product (released last year) because it accurately simulated the 1986 Grand Prix racing season. Drive the famous courses from Indianapolis to Monte Carlo and compete against the top performers of 1986. The player also has to prepare his car for every race by giving the engine a tune-up and testing its aerodynamics in the wind tunnel. Personal injuries and damage to your vehicle can keep you off the circuit for days or even weeks. Yes, this is Grand Prix racing at its best, and I'm sure it will be fantastic on the Commodore 64.


Starflight

Amiga: As the third quarter comes to a close, *Skyfox II: The Cygnus Conflict* will be introduced to the public. Once again, the Xenomorphs are threatening to take over the Terran Federation. These despicable aliens retreated to the distant Cygnus Constellation after their last defeat, and now they're building a number of star-bases there. It's time to put an end to this new dream of conquest. So you jump into your ship and blast off in search of adventure. The new *Skyfox II* Warpfighter is a technological work of art. It comes equipped with Neutron Disruptors, Photon Pulse Bombs, Anti-Matter Mines, a Deceptor Device, Shields and a Scan Monitor (which acts like a radar scope). There are "worm holes" in space that can propel you millions of kilometers in a matter of seconds, and the Cygnus star map contains over 50 starbases (that can be friendly or unfriendly). *Skyfox II,* a single-player game, also features five difficulty levels and ten different battle scenarios. Friends, this is the ultimate shoot-'em-up home computer program (you'll have to use your head *and* your trigger finger).

Zany Golf, a nine-hole miniature golf simulation, is scheduled for an October release. The program's hamburger hole features a giant sandwich going up and down with the cup lying beneath it. Another


The Mars Saga

clever hole design contains electric fans that can blow your ball around and a powerful force field which sends the ball flying when you touch it. *Zany Golf* has several difficulty levels and all the sights and sounds of an authentic mini-golf course.

The Commissioner's Disk, for *Earl Weaver Baseball,* will be coming out early in the fourth quarter. This sophisticated but simple program allows the user to edit stats, alter things in a ballpark (like its foul ball territory, wind conditions, etc.), and print out 3×5 player cards. In short, the disk allows the consumer to become the official commissioner of 16-bit baseball. He can grant days off, make up schedules, run the draft, hire free agents, make trades and do other things along these lines. It's also possible to use the *Commissioner's Disk* to edit the statistics of other Amiga baseball programs. As far as I'm concerned, this product is the ultimate baseball customizing kit which helps *Earl Weaver Baseball* remain state-of-the-art.

64/128 and Amiga: *Starflight,* for both the 64 and Amiga computers, is also slated to ship in November. This unique futuristic role-playing adventure takes you to a galaxy of 270 star systems and 800 planets (where every planet has over 1.9 million locations to explore). Your mission consists of locating inhabitable worlds, collecting valuable minerals, retrieving ancient artifacts, and learning the secrets of numerous alien races. As the player investigates the different solar systems, he will discover planets composed of gas, water, rock, lava and ice. Each world also has its own distinctive physical characteristics (in terms of planetary mass, atmosphere, surface temperature, global weather, etc.). Even though your starship carries advanced lasers, missiles, shields and armor, use them only as a last resort. The real challenge of the program is to find ways of



Jordan vs. Bird: One-On-One

communicating with the different alien beings. Doing things correctly here can often mean the difference between eventual colonization of a planet and going to war with its overseers. I really like the *Starflight* concept because it's an attempt to simulate the art of space exploration and all the problems associated with it.

Last, but not least, EA expects to ship *John Madden Football* (for the 64 and Amiga systems) shortly before Santa makes his rounds. Madden has contributed his years of coaching experience to the design of the product, while the program actually contains material from the Oakland Raiders' playbooks. There are over 200 possible plays in the game. You have the option of setting up a play and letting it go, or you can assume the role of the guy with the ball. The user can also direct the individual movements of all eleven members of his team on every play. There are several unique features I like: the "magnifying glass" permits you to watch a single player as he runs his pattern and pressing the "Oomph" button gives the ball carrier a quick burst of speed. One more thing needs to be said about the program: the player can get into the game very quickly, without having to study much documentation. By the way, 1986 and 1987 player data disks will also be available in the near future. These items will probably contain the point scoring people of the sport (receivers, running backs, quarterbacks, etc.).

Epyx

64/128: Webster defines *epics* as "long narrative poems (in dignified style) about the deeds of a hero or heroes, as *The Iliad* and *The Odyssey*." I define *Epyx* as "the birthplace of incredible software where the user becomes the hero and the rest is up to him." This fall a new collection of unusual titles will be coming your way from Epyx.

First of all, we have *Technocop.* When



Deathlord

an international crime family threatens to take over the city, the Enforcers (an elite police unit of the future) step in to save the day. These hi-tech officers carry computer wristwatches, criminal radar locators, snare guns and .88 magnum pistols. You can also drive around town in V-Max, the most sophisticated automobile on the road today. If a face appears on the vehicle's crime computer, quickly park your car and initiate a search for that dastardly individual. Catch the criminals with the goods and receive promotions. You will also participate in high-speed car chases and the rescuing of hostages. I may not be another Dirty Harry, but *Technocop* allows me to live the life of a new age police officer without leaving the safety of my own computer room.

With victory in sight, I climbed the last few feet of rock and planted my flag on the summit of the peak. Yes, you can experience the same thrills and chills of professional mountain climbing in Epyx's new *Final Assault* program. Eric Escoffier (a well-known climber) contributed to the design of this fabulous simulation, which challenges the consumer to inch his way across treacherous rock faces, crevasses, and glaciers. While preparing for a climb, the user selects his gear, clothing, food and other supplies from a list of over 50 items. Make these choices wisely because a single piece of equipment can make the difference between surviving a climb or simply becoming a another statistic. Onscreen features include indicators for temperature and altitude, a timer, the physical state of the climber and a safety guide which helps the player during his ascent. After seeing *Final Assault* in operation, I can honestly say it's one of the sharpest simulations I've seen in a while and a welcome change of pace.

News Flash: *Street Sports Football,* the latest addition to the Street Sports line of products, will be shipped in the coming weeks. You won't find a fancy stadium,


Ferrari Formula One

astroturf or cheering fans in this program because it's the kind of game you'd play on a vacant lot or in somebody's back yard. Your playing surface is usually dirt or concrete, while items like barricades, puddles and parked cars add spice to the scheme of things. *Street Sports Football* is a three-on-three neighborhood game, where anything can happen.

First there was *Marble Madness.* Now you have to deal with *Mind-Roll.* This addictive marble-rolling contest features a ball that can turn on a dime, race through a maze, leap onto platforms, pass through walls and even bounce when necessary. Everything in the program has been drawn in a realistic 3D perspective and really looks great on the 64. There are ten different games on the disk, multiple levels of play and problems to solve before a round can be completed. If you accepted the challenge of *Marble Madness* and liked it, I'm sure you'll enjoy *Mind-Roll.*

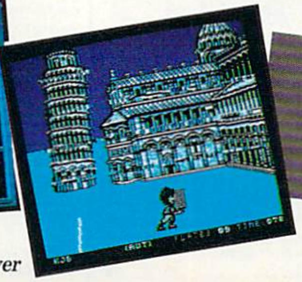
Have you ever wanted to become the admiral of your own fleet? Can you determine the locations of enemy ships on a grid map? Would you like to hear your best friend sob, "You sunk my battleship"? If you gave a "Yes" response to these questions, you might consider joining the Epyx navy. Battleship (the world-famous board game) will soon be in the hands of home computer sea dogs around the world. The rules of *Battleship* are really very simple: two players position their vessels (on separate grid maps) and begin the task of systematically firing shells on possible enemy coordinates. As each round is completed, the locations of your opponent's ships become more obvious. Points are scored for "hitting" a vessel, while a special bonus is awarded for sending it to the bottom. Damage to a vessel is also displayed on the right side of the screen. You can actually see deck fires and gaping holes appearing on the picture of the un-

Continued on page 116



Street Sports Football


The Legend of Blacksilver


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by Mike Rivers

Introducing Amiga CLI

Part 2: ED

In the second installment of our series on the CLI, Technical Editor Mike Rivers introduces ED, AmigaDOS' built-in screen editor.

Last month we took a look at the Command Line Interface (CLI), where it is, how to get to it and how to use it. This month we will investigate AmigaDOS' built-in screen editor, ED. A screen editor allows you to edit text on the entire screen, using the control keys and escape sequences. ED is a program that allows you to create and alter text files. In essence, it is a type of word processor. With it you can read and edit documents (like the "ReadMe" files found on some program disks). You can create source code for a variety of languages, most notably C. *Executable* text files can be created with ED if the entire file is composed of CLI commands. When such a file is executed, the CLI commands contained in it are executed as though you typed them in.

Although ED is a very useful program, there are other, more powerful text editors available on the Amiga. MicroEMACS, for example, is found on the Workbench 1.2 Extras disk, it features a more extensive command set with pull-down menus.

The entire set of ED commands can be found in appendix B, page 3 of the *Introduction to the Commodore Amiga 500* manual and on page 6 appendix B of the Amiga 2000 manual.

Before you try the following examples, make a copy of your Workbench disk and use the copy, not the original.

To use ED, you must open a CLI window by double-clicking the CLI icon in the System drawer with the left mouse button. Type the CLI command "ED" and any filename in the CLI window, for example, "ED mytext". ED will open the ED window and tell you it is creating a new file. Try typing some text in the ED window. You may type to the end of the line, and the text will wrap around to the next line, or you may begin a new line anywhere with the RETURN key. ED accepts up to 255 characters per line, then it displays the error message, "Line too long."

The BACKSPACE key deletes the character to the left of the cursor, as you would expect. DEL deletes the character at the cursor position. TAB moves the cursor to the next tab position, and the cursor keys move the cursor around the screen in their respective directions. Try these keys on the text you have typed to get a feel for how ED reacts.

ED has two command modes, immediate and extended mode. ED is typically in immediate mode, where you use a combination of the CONTROL key and letter keys to issue commands. For example, CONTROL/B deletes a line. Extended mode allows you to use several commands at once and gives you the ability to repeat them with a single key sequence. Press the ESC (escape) key to enter extended mode. In extended mode the bottom line of the screen is a command line and a message area. After you press ESC, an asterisk appears on the bottom line of the screen, indicating that ED is in extended mode. To delete a line in extended mode press ESC and "D" in succession. The extended mode asterisk appears on the bottom line followed by the character "D". When you press RETURN, the command is executed and the current line (that is, where the cursor was when you entered extended mode) is deleted. To leave extended mode without typing a command, simply press RETURN, and ED will enter immediate mode.

To insert text, place the cursor above the line where you want the new text to go and press CONTROL/A. A blank line will appear below the current line where the cursor is. You may have noticed that ED is always in insert mode. If you type new text in the middle of a line, ED shifts the old text to the right. Also notice that ED has no type-over mode. That means if you want to change a word or line it must be deleted using either the immediate or extended delete function.

In extended mode, you may type several commands to be executed on the command line, and ED can be made to repeat those commands as many times as you wish. To repeat a single command several times, prefix the command with a number representing how many times you want it to be repeated. For example, 6A// inserts six blank lines after the current line; 5 E/me/you/ exchanges the next five occurrences of "me" to "you." Notice that strings are enclosed in slashes. To change all occurrences of "me" to "you" in a file use the RP (repeat) command. RP repeats the command until an error is encountered. Finding the end of the file will cause RP to stop. The T command (move to top of file) is used to begin the process from the top of the file. For example, T;RP E /me/you/ will cause all occurrences of "me" to be changed to "you." Notice that the top of file command is separated from RP by a semicolon. Commands may be further grouped and nested by putting them in parentheses. Try something like: RP (F /it/;S). This will split the line at the cursor after every occurrence of "it."

ED has some useful commands for cursor movement. You can scroll up or down 12 lines at a time by using CONTROL/U and CONTROL/D. CONTROL/E alternately moves the cursor to the top or bottom of the text. CONTROL/I moves the cursor to the next tab position. CONTROL/R moves the cursor to the end of the previous word, and CONTROL/T moves to the start of the next word. In extended mode, ESC M followed by a line number moves the cursor to that line. If you are on your fifth screen of text and want to get to line number twenty, type ESC M 20.

The two most important extended commands to learn are ESC X, which exits the program and writes the file to its destination and ESC Q, which quits ED without saving anything. Three other useful ones are ESC U, which performs an "Undo" function (as long as you have not moved from the current line), and ESC SH, which Shows the status of the editor. ESC SA will save a copy of the file without exiting ED. SA is good for backing up your file periodically in case of a power failure. If you try to exit ED without saving your current changes, ED will warn you with the message: "Edits will be lost—type Y to confirm."

ED has more commands for doing string searches and various types of text insertions and replacements which you may want to investigate. If you're planning to work with very large files, I recommend using a more powerful screen editor with a friendlier user interface. This is not to say ED is not a useful screen editor; it works fine for smaller executable files, and you can get to it quickly. I find it particularly useful for modifying the Amiga's startup-sequence. Next month, we'll discuss how that's done.

by Fred Karg

The Challenge

for the Commodore 64



ART BAXTER

The Challenge is a one-player strategy game designed for the Commodore 64. The game is reminiscent of Rubik's Cube, although it's much simpler to solve. The Challenge offers two options of play with three difficulty levels per option.

In the Knight's Challenge Mode, the player is shown chess pieces arranged in columns and rows. The pieces are then shuffled, and the player must put them back in the original order with the fewest number of moves. Pressing F7 during play will show what the completed puzzle is supposed to look like.

Color Challenge Mode uses colored squares instead of chess pieces. A joystick plugged into port 2 is required.

Use the joystick to move the arrow on the screen to point to any row or column of the game grid. If the arrow points to a row, then pressing the fire button will move each piece in that row one position to the left. The piece on the far left will wrap around to the right. Columns can be manipulated in a similar fashion. Each press of the fire button counts as one move. When the puzzle is solved, the computer will play the choral movement from Beethoven's Ninth Symphony.

You may change the screen and background border colors at any time by pressing F1 and F3, respectively. Chess piece colors can also be changed by pressing F5 and F7. This option is only available before the first game is played.

Like the game of chess, the game becomes most fascinating when the player tries to anticipate patterns several moves in the future and is thus able to combine many pieces in just one move. ■

Before typing this program, read "How to Enter Programs" and "How to Use the Magazine Entry Program." The BASIC programs in this magazine are available on disk from Loadstar, P.O. Box 30008, Shreveport, LA 71130-0007, 1-800-831-2694.

The Challenge

```
20 POKE 53281,Ø:POKE 53280,12
   :PL=Ø'DUQE
30 PRINT"[CLEAR,DOWN2,RIGHT12,RVS,
   YELLOW] THE CHALLENGE "'BASG
40 PRINT"[DOWN4] LOADING MACHINE
   LANGUAGE..."'BAXI
50 FOR N=1 TO 3Ø:READ A:NEXT'FHSF
60 FOR N=16128 TO 17412:READ A
   :POKE N,A:NEXT'GSLJ
70 S=54272:V=53248:POKE 53276,255
   :POKE V+27,255:POKE V+16,Ø
   :POKE V+28,Ø'JSES
80 FOR N=S TO S+24:POKE N,Ø:NEXT
   :POKE S+5,144'IRRM
85 POKE S+6,251:POKE 49378,2
   :POKE 4938Ø,1'EWCQ
90 FOR N=Ø TO 6:X=212-28*N
   :POKE 49153+N,X'IUWO
95 POKE 49161+N,X-21:POKE 53248+N*2,
   3Ø+N*3Ø'IYEU
100 POKE 53249+N*2,23Ø:NEXT
    :POKE 53262,24Ø:POKE 49152,24Ø
    :POKE 4916Ø,219'HRLH
110 POKE 53263,23Ø:FOR N=Ø TO 3
    :POKE 2Ø4Ø+N,255'GXPE
115 POKE V+39+N,1:NEXT:FOR N=4 TO 7
    :POKE 2Ø4Ø+N,254:POKE V+39+N,2
    :NEXT'NEFP
120 POKE 646,PEEK(53281)-1
    :POKE 49383,Ø'EUPD
130 POKE 49374,1:POKE 53269,Ø'CPCC
140 PRINT"[CLEAR,DOWN3,RIGHT2,RVS] 1
    [RVOFF] KNIGHT'S CHALLENGE"
    :PRINT"[DOWN2,RIGHT2,RVS] 2
    [RVOFF] COLOR CHALLENGE"'CBPN
150 PRINT"[DOWN4,RIGHT2,RVS]
     PLEASE CHOOSE 1 OR 2 ";
    :POKE 198,Ø'CHEI
160 GET K$:IF K$=""THEN 16Ø'EIBF
170 IF K$<>"1"AND K$<>"2"THEN 12Ø'HHBI
180 PRINT"[CLEAR,DOWN2,RIGHT2]
    PLEASE CHOOSE DIFFICULTY
    LEVEL"'BAIM
190 PRINT"[DOWN2,RIGHT2]
    PICK A NUMBER FROM [RVS] 1 [RVOFF]
     (EASY)":PRINT'CBXN
195 PRINT SPC(18)"TO [RVS] 3 [RVOFF]
     (HARD)"'CDSO
200 GET K1$:IF K1$=""THEN 2ØØ'EKTA
210 K=ASC(K1$)-48:IF K<1 OR K>3 THEN
    2ØØ'IQOF
220 IF K$="1"THEN GOSUB 4ØØ
    :POKE 829,PEEK(53281)'GRQF
230 IF K$="2"THEN GOSUB 6ØØ'EFSC
240 IF PL=Ø THEN:SYS 16385:PL=1'FNVG
250 POKE 49377,1:IF PL=1 THEN POKE
    174,71:POKE 175,4'GXEJ
260 POKE 49396,3:PRINT"[CLEAR,DOWN2]
    "SPC(7)"LET THE CHALLENGE BEGIN!
    [DOWN]"'DKGM
```

```
270 PRINT SPC(8)"(USE JOYSTICK
    PORT2)"'CCXK
275 PRINT"[DOWN2,RIGHT6]
    YOUR CHALLENGE IS TO
    DUPLICATE"'BAYR
280 PRINT SPC(12)"THIS PATTERN"'CDAJ
285 PRINT"[DOWN2,RIGHT6]PRESS [RVS]
     F7 [RVOFF] DURING GAME TO
    SEE"'BAMS
290 PRINT SPC(12)"[DOWN]
    THIS SOLVED PUZZLE"'CDBM
295 PRINT"[DOWN2,RIGHT6,RVS]
    PRESS SPACE BAR TO BEGIN":C=Ø'CDRT
300 C=(1-C):POKE 53269,C*255
    :FOR N=1 TO 100'HWXG
305 IF PEEK(197)<>6Ø THEN NEXT N
    :GOTO 3ØØ'HMNI
310 N=100:NEXT'CFBA
320 IF PEEK(197)<>64 THEN 32Ø'FKWE
330 PRINT"[CLEAR]SHUFFLING PATTERN"
    :POKE 53269,Ø:POKE 49383,1'DQSK
335 FOR N=1 TO 2ØØ:NEXT N'EHQI
340 POKE 53281,PEEK(53281)+1
    :PRINT"[CLEAR]":POKE 53281,
    PEEK(53281)-1:POKE 1095,31'INNO
350 FOR N=1499 TO 15Ø3:POKE N,48
    :NEXT'FPFI
360 POKE 646,PEEK(53281)+1'DMIH
370 POKE 49374,Ø:PRINT"[HOME,DOWN9]
    "SPC(34)"[RVS] MOVES"'DLPK
375 POKE 53269,255:POKE 49377,Ø
    :POKE 49379,Ø'DAXP
380 IF PEEK(49379)=1 THEN POKE 49377,1
    :GOTO 7ØØ'GTWM
390 GOTO 38Ø'BDKH
400 IF PL=1 THEN POKE 53281,PEEK(829)
    :GOTO 55Ø'GSMF
410 POKE 53269,255'BJDB
420 POKE 646,PEEK(53281)+1'DMIE
430 PRINT"[CLEAR]"SPC(1Ø)"[DOWN2,RVS]
     TO CHANGE COLORS "'CDHI
435 PRINT SPC(8)"[DOWN,RVS]
     PRESS FUNCTION KEYS"'CCXN
440 PRINT"[DOWN2,RIGHT2,RVS] F1
    [RVOFF] CHANGES SCREEN COLOR"'BACJ
445 PRINT"[DOWN,RIGHT2,RVS] F3 [RVOFF]
     CHANGES BACKGROUND COLOR"'BASQ
450 PRINT"[DOWN,RIGHT2,RVS] F5 [RVOFF]
     CHANGES CHESSPIECE 1 COLOR"'BAWM
460 PRINT"[DOWN,RIGHT2,RVS] F7 [RVOFF]
     CHANGES CHESSPIECE 2 COLOR"'BAAN
470 PRINT"[DOWN,RIGHT5,RVS]
     PRESS SPACE BAR TO START"'BAAN
480 GET K2$:IF K2$=""THEN 48Ø'EKGK
490 IF K2$=" "THEN PRINT"[CLEAR]"
    :GOTO 55Ø'FHVM
500 IF K2$="[F1]"THEN X=PEEK(53281)+1
    :GOSUB 68Ø:POKE 53281,X
    :GOTO 42Ø'JDCL
510 IF K2$="[F3]"THEN X=PEEK(5328Ø)+1
    :GOSUB 68Ø:POKE 5328Ø,X'IYSK
520 IF K2$="[F5]"THEN GOSUB 64Ø'EGBF
530 IF K2$="[F7]"THEN GOSUB 66Ø'EGEG
540 GOTO 48Ø'BDLE
550 PRINT"[DOWN] PLEASE WAIT..."
    :FOR R=Ø TO 6:CO=PEEK(49378):SH=Ø
    :FOR C=Ø TO 7'KWYT
560 IF C>3 THEN CO=PEEK(4938Ø)
    :IF K=1 THEN SH=1'JRHO
570 IF K=2 THEN SH=INT(C/2)+2*(C>3)
    'JNNO
580 IF K=3 THEN SH=C+4*(C>3)'HKSN
590 POKE 4917Ø+C+R*8,CO
    :POKE 49226+C+R*8,255-SH:NEXT:NEXT
    :RETURN'MEAW
600 PRINT"[DOWN] PLEASE WAIT..."
    :FOR R=Ø TO 6:CO=Ø:FOR C=Ø TO
    7'IMLL
605 IF K=1 THEN IF C>3 THEN CO=1'HHUL
610 IF K=2 THEN CO=INT(C/2)'GIEG
620 IF K=3 THEN CO=C'EFHF
630 POKE 4917Ø+C+R*8,CO+1
    :POKE 49226+C+R*8,251:NEXT
    :NEXT'LCBP
635 FOR N=16Ø64 TO 16127:POKE N,255
    :NEXT:POKE 53281,Ø:RETURN'HCSR
640 FOR N=Ø TO 3:X=PEEK(V+39+N)+1
    :IF X>255 THEN X=Ø'MTEQ
650 POKE V+39+N,X:NEXT:POKE 4938Ø,X
    :RETURN'GQUM
660 FOR N=4 TO 7:X=PEEK(V+39+N)+1
    :IF X>255 THEN X=Ø'MTMS
670 POKE V+39+N,X:NEXT:POKE 49378,X
    :RETURN'GQCO
680 IF X>253 THEN X=Ø'EGPM
690 RETURN'BAQJ
700 POKE S+24,15:FOR J=Ø TO 1:RESTORE
    :FOR J1=1 TO 15:READ HF,LF
    :POKE 53269,LF'LHNO
710 POKE S+1,HF:POKE S,LF
    :POKE S+4,33-J*16:FOR N=1 TO 8Ø
    :NEXT:POKE S+4,32-J*16'PJAT
720 FOR N=1 TO 1ØØ:NEXT:NEXT
    :FOR N=1 TO 1ØØ:NEXT:NEXT
    :POKE S+24,Ø:GOTO 12Ø'NAVP
730 DATA 21,31,21,31,22,96,25,3Ø,25,
    3Ø,22,96,21,31,18,2Ø9,16,195,16,
    195'BMBQ
740 DATA 18,2Ø9,21,31,21,31,18,2Ø9,18,
    2Ø9'BHSL
750 DATA Ø,24,Ø,Ø,6Ø,Ø,Ø,122,Ø,Ø,118,
    Ø,Ø,6Ø,Ø,Ø'BNKN
760 DATA 24,Ø,Ø,6Ø,Ø,Ø,126,Ø,Ø,Ø,Ø,Ø,
    6Ø,Ø,Ø,126'BNNO
770 DATA Ø,Ø,Ø,Ø,Ø,6Ø,Ø,Ø,6Ø,Ø,Ø,6Ø,Ø,
    Ø,6Ø,Ø'BKNO
780 DATA Ø,6Ø,Ø,Ø,126,Ø,Ø,255,Ø,Ø,Ø,Ø,
    1,255,128,Ø'BPYQ
790 DATA Ø,Ø,Ø,1,126,128,1,126,128,1,
    255,128,1,255,128,Ø'BWMT
800 DATA Ø,Ø,Ø,126,Ø,Ø,126,Ø,Ø,126,Ø,
    Ø,126,Ø,Ø,126'BQKK
810 DATA Ø,Ø,126,Ø,Ø,126,Ø,1,255,128,
    Ø,Ø,Ø,1,255,128'BSCL
820 DATA 3,255,192,7,255,224,Ø,Ø,Ø,7,
    255,224,7,255,224,167'BYPN
830 DATA Ø,3,Ø,Ø,15,Ø,Ø,127,Ø,1,254,
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Continued on page 86

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     128,3,157,192,15'BSMN
840 DATA 255,96,25,254,224,6,15,176,0,
     31,112,0,62,224,0,255'BAAQ
850 DATA 160,1,255,64,1,254,192,1,255,
     128,0,255,128,0,127,128'BCDR
860 DATA 0,0,0,7,255,224,0,0,0,1,255,
     128,7,255,224,0'BSOQ
870 DATA 0,60,0,0,24,0,0,126,0,0,24,0,
     0,60,0,1'BMNQ
880 DATA 255,128,0,255,0,0,0,0,0,60,0,
     0,126,0,0,36'BQYS
890 DATA 0,0,60,0,0,60,0,0,126,0,0,
     126,0,0,126,0'BOOS
900 DATA 0,255,0,0,189,0,0,102,0,1,
     255,128,7,255,224,0'BULM
910 DATA 0,169,255,141,14,212,141,15,
     212,169,129,141,18,212,141,
     141'BIJP
920 DATA 2,120,169,127,141,13,220,169,
     1,141,26,208,169,8,141,247'BFYQ
930 DATA 192,173,0,192,141,18,208,169,
     27,141,17,208,169,124,141,20'BHFR
940 DATA 3,169,64,141,21,3,169,147,32,
     210,255,169,0,141,227,192'BELR
950 DATA 141,225,192,168,169,48,141,
     218,5,141,219,5,141,220,5,141'BGDT
960 DATA 221,5,141,222,5,141,223,5,
     169,3,141,244,192,169,71,133'BEAT
970 DATA 174,169,4,133,175,169,31,141,
     243,192,145,174,169,18,133,
     253'BJYV
980 DATA 169,74,133,251,169,192,133,
     254,133,252,88,96,173,25,208,
     141'BJAX
990 DATA 25,208,201,7,208,3,76,55,65,
     206,247,192,16,100,169,6'BCSW
1000 DATA 141,247,192,165,162,208,91,
      169,245,133,162,173,225,192,208,
      3'BKNF
1010 DATA 32,64,65,165,197,201,64,240,
      57,201,4,208,28,238,33,208'BETE
1020 DATA 173,228,192,205,33,208,208,
      3,238,33,208,173,226,192,205,
      33'BIJG
1030 DATA 208,208,47,238,33,208,76,
      242,64,201,5,208,6,238,32,
      208'BEUG
1040 DATA 76,242,64,201,3,208,27,173,
      222,192,208,6,32,164,67,32'BDOH
1050 DATA 120,67,173,231,192,240,11,
      32,216,66,32,102,66,169,0,
      141'BFQJ
1060 DATA 231,192,174,247,192,160,0,
      189,8,192,153,1,208,200,200,
      192'BHBK
1070 DATA 16,208,247,160,0,177,253,
      153,39,208,177,251,153,248,7,
      200'BHNL
1080 DATA 192,8,208,241,165,251,24,
      105,8,133,251,165,253,24,105,
      8'BFDM
1090 DATA 133,253,201,74,208,8,169,18,
      133,253,169,74,133,251,189,0'BGSN
1100 DATA 192,141,18,208,138,240,6,
      104,168,104,170,104,64,76,49,
      234'BHJF
1110 DATA 173,0,220,160,0,162,0,74,
      176,1,136,74,176,1,200,74'BARF
1120 DATA 176,1,202,74,176,1,232,74,
      142,242,192,140,241,192,144,
      125'BHVH
1130 DATA 173,242,192,240,22,201,1,
      240,9,238,244,192,238,244,192,
      76'BHII
1140 DATA 148,65,206,244,192,206,244,
      192,76,148,65,173,241,192,208,
      1'BIAJ
1150 DATA 96,201,1,240,9,206,244,192,
      206,244,192,76,148,65,238,
      244'BGVK
1160 DATA 192,238,244,192,173,244,192,
      201,33,240,13,201,1,208,15,
      238'BIUL
1170 DATA 244,192,238,244,192,76,174,
      65,206,244,192,206,244,192,173,
      244'BLAN
1180 DATA 192,201,17,144,8,169,30,141,
      243,192,76,194,65,169,31,141'BGRN
1190 DATA 243,192,160,0,169,32,145,
      174,172,244,192,185,193,67,133,
      174'BJXO
1200 DATA 185,194,67,133,175,160,0,
      173,243,192,145,174,96,32,86,
      67'BGLG
1210 DATA 172,244,192,185,226,67,133,
      176,105,56,133,178,185,227,67,
      133'BKDI
1220 DATA 177,133,179,173,244,192,201,
      16,176,43,160,0,177,176,141,
      239'BJUI
1230 DATA 192,177,178,141,237,192,200,
      177,176,136,145,176,200,177,178,
      136'BNDK
1240 DATA 145,178,200,192,7,208,239,
      173,239,192,145,176,173,237,192,
      145'BLDL
1250 DATA 178,32,249,66,96,160,0,177,
      176,141,239,192,177,178,141,
      237'BISL
1260 DATA 192,152,24,105,8,168,177,
      176,141,238,192,177,178,141,236,
      192'BKDN
1270 DATA 152,56,233,8,168,173,238,
      192,145,176,173,236,192,145,178,
      152'BKGO
1280 DATA 24,105,8,168,192,48,208,217,
      173,239,192,145,176,173,237,
      192'BJGP
1290 DATA 145,178,32,249,66,96,165,
      174,141,230,192,165,175,141,229,
      192'BKEQ
1300 DATA 169,100,141,222,192,160,0,
      169,18,133,174,169,74,133,176,
      169'BJRH
1310 DATA 192,133,175,133,177,177,174,
      141,239,192,177,176,141,237,192,
      140'BNYJ
1320 DATA 232,192,32,206,66,177,174,
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     141,238,192,177,176,141,236,192,
     173'BLWK
133Ø DATA 239,192,145,174,173,237,192,
     145,176,172,232,192,173,238,192,
     145'BNEL
134Ø DATA 174,173,236,192,145,176,2ØØ,
     192,56,2Ø8,2Ø2,238,222,192,173,
     222'BMGM
135Ø DATA 192,2Ø8,178,173,229,192,133,
     175,173,23Ø,192,133,174,96,173,
     27'BLCN
136Ø DATA 212,74,168,2Ø1,55,176,247,
     96,32,65,67,169,18,133,251,
     169'BGNN
137Ø DATA 192,133,252,169,1,133,253,
     169,194,133,254,16Ø,Ø,177,251,
     145'BJLO
138Ø DATA 253,2ØØ,192,112,2Ø8,247,32,
     44,67,173,225,192,2Ø8,66,32,
     65'BHMP
139Ø DATA 67,169,18,133,251,169,192,
     133,252,169,1,133,253,169,194,
     133'BJEQ
14ØØ DATA 254,16Ø,Ø,177,251,141,223,
     192,177,253,2Ø5,223,192,2Ø8,13,
     2ØØ'BKMJ
141Ø DATA 192,112,2Ø8,239,169,1,141,
     227,192,141,32,2Ø8,173,239,192,
     133'BKEK
142Ø DATA 251,173,238,192,133,252,173,
     237,192,133,253,173,236,192,133,
     254'BNLL
143Ø DATA 96,165,251,141,239,192,165,
     252,141,238,192,165,253,141,237,
     192'BMUM
144Ø DATA 165,254,141,236,192,96,32,
     65,67,16Ø,5,169,218,133,251,
     169'BHGM
145Ø DATA 5,133,252,177,251,24,1Ø5,1,
     145,251,2Ø1,58,2Ø8,19Ø,169,
     48'BGGN
146Ø DATA 145,251,136,2Ø8,238,32,44,
     67,32,65,67,169,18,133,251,
     169'BGEO
147Ø DATA 192,133,252,169,1,133,253,
     169,194,133,254,16Ø,Ø,177,253,
     141'BJJP
148Ø DATA 229,192,177,251,145,253,173,
     229,192,145,251,2ØØ,192,112,2Ø8,
     237'BNJR
149Ø DATA 32,44,67,96,173,225,192,2Ø8,
     12,169,1,141,225,192,173,32'BFPR
15ØØ DATA 2Ø8,141,224,192,96,169,Ø,
     141,225,192,173,224,192,141,32,
     2Ø8'BJHJ
151Ø DATA 96,Ø,Ø,Ø,71,4,231,4,95,5,
     255,5,119,6,23,7'BQRH
152Ø DATA 143,7,22Ø,7,216,7,212,7,2Ø9,
     7,2Ø5,7,2Ø1,7,197,7'BWRJ
153Ø DATA 194,7,Ø,Ø,Ø,18,192,26,192,
     34,192,42,192,5Ø,192,58'BYWK
154Ø DATA 192,66,192,25,192,24,192,23,
     192,22,192,21,192,2Ø,192,19'BFON
155Ø DATA 192,18,192,255,Ø'BQJG
```

END

by John Fedor

Pivot Point

for the Commodore 64



ART BAXTER

Here is a version of an old board game with a new twist. It is checkers with the added challenge of balancing. The game is played the same way as checkers, except that you must be careful not to let your side get too heavy, or else you will need to take off some of your pieces in order to put the game back into balance.

To play the game, you will need two players and two joysticks. Player one's joystick is in port 1. By moving the joystick, you move the cursor. Place the cursor (via joystick) on top of one of your playing pieces. Blue is player one; green is player two. Pressing the fire button will select that piece. Now move the cursor to the place that you wish to drop the piece.

You can jump one piece at a time (there are multiple jumps, however). If you do jump and there is another possible jump, the computer will tell you to jump again. You *must* jump with the piece that just jumped. A lighter shade of blue or green signifies a King piece. A King may go in either of the four possible directions, while a normal piece can go only towards the opposite side of its original position. To get a King, you must get a piece to the other side of the board.

Those are the standard directions. Now you need to know about the enhancements. On the far right of the screen is a scale with a bar in it. The bar tells which way and to what degree the board is tilting. If the bar gets into the red area, someone must start taking pieces off the board until the bar is back into the green area. If the player (as selected at the top of the screen) cannot remove any pieces from his half of the screen, the other player automatically wins. Normal pieces are one unit in weight, while the Kings are two units. The distance from the center also affects the scale. After a couple of moves you will get a feel for how the scale works.

So there are three ways to win: (1) The player whose turn it is cannot move legally; (2) One player is out of pieces; or (3) A player cannot remove any pieces on his half to balance the board.

If you want a dramatic scale mover, let a King in the back row jump out. This will remove a piece from that side and also move the weight closer to the other side. This could be just enough to make the other start removing pieces. Also, by double or triple jumping, you may jeopardize the balance of the board by removing too much weight from one half of the board. Use caution not to get stuck with removing one or two of your opponent's pieces and three or four of your own!

Before typing this program, read "How to Enter Programs" and "How to Use the Magazine Entry Program." The BASIC programs in this magazine are available on disk from Loadstar, P.O. Box 30008, Shreveport, LA 71130-0007, 1-800-831-2694.

Pivot Point

```
10 GOSUB 300'BDGX
15 CLR:DIM BO(8,8):S=54272
   :FOR I=0 TO 23:POKE I+S,0:NEXT
   :POKE S+24,15'LIBQ
20 POKE S+6,248:POKE S+1,33
   :POKE S+13,248:POKE S+8,20
   :POKE S+20,248:POKE S+15,8'MPUO
25 DEF FN B(X)=(16-(PEEK(56320)AND
   16))OR(16-(PEEK(56321)AND 16))'KJQQ
30 PRINT"[CLEAR,DOWN3]":POKE 53280,11
   :POKE 53281,12'DSKF
35 D$="[RVS,SPACE2,DOWN,LEFT2,SPACE2,
   UP,RVOFF]":C$="[RED,BLACK]"'CFEK
40 Z=1:FOR Y=1 TO 8:PRINT TAB(7)
   :FOR X=1 TO 8'JNII
45 PRINT MID$(C$,Z,1)D$;:Z=3-Z:NEXT
   :PRINT"[DOWN]":Z=3-Z:NEXT'JWXP
50 PRINT"[HOME,BLACK]";'BBTC
55 FOR I=1 TO 24:PRINT TAB(30)"
   [CMDR N]":NEXT:PRINT TAB(30)"
   [CMDR N,HOME,DOWN10]"'INMP
60 PRINT"[CMDR P7]"TAB(23)"[CMDR P7,
   SHFT @]"'CDLO
65 PRINT"[CMDR Y7]"TAB(23)"[CMDR Y7,
   SHFT P]"'CDUT
70 PRINT"[HOME]"TAB(33)"[DOWN3,WHITE]
   TILT[DOWN]"'CDDG
75 C$="[RED,YELLOW,GREEN,YELLOW,RED]"
   :FOR X=1 TO 5:FOR Y=1 TO 3
   :PRINT TAB(34)MID$(C$,X,1)"[RVS,
   SPACE2,RVOFF]"'KWBV
80 IF X=3 AND Y=2 THEN 90'FGUI
85 NEXT Y'BBSJ
90 NEXT X'BBRF
95 FOR I=16320 TO 16383:POKE I,0:NEXT
   :FOR Y=0 TO 1:FOR X=0 TO 1
   :POKE 16320+Y*3+X,255'PMVC
100 NEXT:NEXT'CBLV
105 POKE 53248,40:POKE 53249,145
    :POKE 2040,255:POKE 53264,1
    :POKE 53287,1'FSVL
110 POKE 53271,0:POKE 53277,0
    :POKE 53286,0:POKE 53269,1'EGYE
115 FOR Y=1 TO 2:FOR X=3-Y TO 8 STEP 2
    :BO(X,Y)=1:NEXT:NEXT'LUDM
120 FOR Y=1 TO 2:FOR X=3-Y TO 8 STEP 2
    :BO(X,Y+6)=-1:NEXT:NEXT'NVLK
125 GOSUB 385'BDTD
130 FOR I=16256 TO 16319:POKE I,0
    :NEXT'FQOE
135 FOR X=0 TO 1:FOR Y=0 TO 1
    :POKE 16256+Y*3+X,255'KUTN
138 POKE 16256+X+(Y+14)*3,255:NEXT
    :NEXT'HSFO
140 FOR Y=2 TO 13:POKE 16256+Y*3,192
    :POKE 16257+Y*3,3:NEXT'KCYL
145 POKE 2041,254:POKE 53250,80
    :POKE 53251,82:POKE 53288,1
    :POKE 53269,3'FRVP
150 TU=1:X3=1:Y3=1'DLUE
155 JU=0:X=X3:Y=Y3'DLHK
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160 PRINT"[HOME,WHITE]PLAYER # "TU"IS
    UP.[SPACE12]"'BCOH
165 PRINT"PLACE CURSOR ON PIECE TO
    MOVE."'BAJO
170 GOSUB 425:Z=1:IF TU=2 THEN
    Z=-1'HMCJ
175 IF SGN(BO(X,Y))<>Z THEN GOSUB 825
    :GOTO 170'HRIP
180 GOSUB 815'BDRE
185 X1=X:Y1=Y:PRINT"[HOME,DOWN,WHITE]
    PLACE ON WHERE TO MOVE TO.[SPACE4]
    "'DILT
190 GOSUB 425:IF BO(X,Y)<>Ø THEN
    GOSUB 825:GOTO 190'HTLM
195 X3=X:Y3=Y'CHBM
200 IF X1=X OR Y1=Y THEN GOSUB 825
    :GOTO 160'HNSD
205 IF ABS(X1-X)<>ABS(Y1-Y)THEN GOSUB
    825:GOTO 160'KRRL
210 Z=1:IF TU=Z THEN Z=-Z'GIKD
215 IF SGN(Y-Y1)=Z AND ABS(BO(X1,
    Y1))=1 THEN GOSUB 825
    :GOTO 160'KARO
220 IF ABS(X1-X)=1 THEN 245'FJQD
225 IF ABS(X1-X)>2 THEN GOSUB 825
    :GOTO 160'HNUK
230 X2=INT(X1+X)/2:Y2=INT(Y1+Y)/2'IRXI
235 IF SGN(BO(X2,Y2))<>Z THEN GOSUB
    825:GOTO 160'HTHM
240 JU=1'BDEB
245 GOSUB 820:BO(X,Y)=BO(X1,Y1)
    :BO(X1,Y1)=Ø:IF ABS(X1-X)=2 THEN
    BO(X2,Y2)=Ø'JXYW
250 FOR X=1 TO 8'DDBD
255 IF BO(X,1)=-1 THEN BO(X,1)=-2'GQYN
260 IF BO(X,8)=1 THEN BO(X,8)=2'EQCI
265 NEXT'BAEH
270 GOSUB 375'BDSE
275 GOSUB 385:GOSUB 360'CHPK
280 IF JU=1 THEN GOSUB 465
    :GOTO 280'FKKJ
285 TU=TU+1:IF TU>2 THEN TU=1'GMXQ
290 GOSUB 590'BDRG
295 GOTO 155'BDKL
300 POKE 53280,6:POKE 53281,3'CPUB
305 PRINT"[CLEAR,WHITE,DOWN2]
    "TAB(14)"[PURPLE]PIVIT[SPACE2]
    POINT[WHITE]"'CDJI
310 PRINT TAB(19)"[DOWN]BY"'CDYA
315 PRINT TAB(15)"[DOWN,PURPLE]
    JOHN FEDOR[WHITE]"'CDTI
320 DEF FN A(X)=(16-(PEEK(56320)AND
    16))OR(16-(PEEK(56321)AND
    16))'KJPM
325 A$(3)="[SHFT C4]":A$(2)="[SHFT D,
    SHFT C2,SHFT F]":A$(4)="[SHFT F,
    SHFT C2,SHFT D]":A$(1)="[SHFT E,
    SHFT D,SHFT C,SHFT F]"
    :A$(5)="[SHFT F,SHFT C,SHFT D,
    SHFT E]"'FEHD
330 PRINT TAB(8)"[DOWN17]PRESS [BLUE]
    FIREBUTTON[WHITE] TO PLAY[L. BLUE,
    HOME]"'CCIK
335 Z=1:DZ=1'CGWH
340 PRINT"[HOME,DOWN13]
    "TAB(18)A$(Z)'CIFE
345 Z=Z+DZ:IF Z=1 OR Z=5 THEN
    DZ=-DZ'JNYP
350 IF FN A(1)=Ø THEN 340'EITG
355 RETURN'BAQH
360 S1=Ø:S2=Ø:FOR Y=1 TO 4
    :FOR X=1 TO 8'IPRL
365 S1=S1+ABS(BO(X,Y))*(5-Y)
    :S2=S2+ABS(BO(X,Y+4))*Y:NEXT
    :NEXT'MKHY
370 POKE 53249,145-(S1-S2)*3
    :RETURN'FRLK
375 PRINT"[HOME]"'BAVJ
380 PRINT"[SPACE30]":RETURN'CBHK
385 C$="[BLACK,BLUE,L. BLUE,GREEN,
    L. GREEN]":PRINT"[HOME,DOWN3]"
    :FOR Y=1 TO 8:PRINT TAB(7)
    :FOR X=1 TO 8'KOAV
390 IF(X+Y)/2=INT((X+Y)/2)THEN PRINT"
    [RIGHT2]";:GOTO 415'KRGQ
395 Z=2:IF BO(X,Y)<Ø THEN Z=4'FNOR
400 IF ABS(BO(X,Y))=2 THEN Z=Z+1'GNDF
405 IF BO(X,Y)=Ø THEN Z=1'EKQI
410 PRINT MID$(C$,Z,1)D$;'CLKC
415 NEXT:PRINT"[DOWN]":NEXT'DCIG
420 RETURN'BAQA
425 J=31-(PEEK(56322-TU)AND 31)'FQPL
430 IF(J AND 1)=1 THEN Y=Y-1
    :IF Y<1 THEN Y=8'KNMK
```

```
435 IF(J AND 2)=2 THEN Y=Y+1
    :IF Y>8 THEN Y=1'KNLP
440 IF(J AND 4)=4 THEN X=X-1
    :IF X<1 THEN X=8'KNOL
445 IF(J AND 8)=8 THEN X=X+1
    :IF X>8 THEN X=1'KNTQ
450 POKE 53250,X*16+64:POKE 53251,
    Y*16+66'GXQL
455 IF J<>16 THEN 425'EGAL
460 RETURN'BAQE
465 Z=1:IF TU=2 THEN Z=-Z'GIUP
470 A=-1:B=1:IF BO(X3,Y3)=1 THEN
    A=Ø'HSVN
475 IF BO(X3,Y3)=-1 THEN B=Ø'FMJQ
480 FOR X4=-1 TO 1:FOR Y4=A TO B'HJTM
485 IF X4=Ø OR Y4=Ø THEN 515'FJOQ
490 X5=X3+X4:Y5=Y3+Y4:IF X5<1 OR X5>8
    OR Y5<1 OR Y5>8 THEN 515'NEKX
495 IF SGN(BO(X5,Y5))<>-Z THEN
    515'GPYT
500 X5=X3+X4*2:Y5=Y3+Y4*2
    :IF X5<1 OR X5>8 OR Y5<1 OR Y5>8
    THEN 515'PGXQ
505 IF BO(X5,Y5)<>Ø THEN 515'ENMJ
510 JU=2'BDFB
515 NEXT:NEXT:JU=JU-1'EHRJ
520 IF JU=Ø THEN RETURN'EDOE
525 PRINT"[HOME,WHITE]JUMP AGAIN!
    [SPACE6]":GOSUB 815'CEML
530 X=X3:Y=Y3:GOSUB 425'DLYG
535 IF ABS(X-X3)<>2 OR ABS(Y-Y3)<>2
    THEN GOSUB 825:GOTO 530'NTRT
540 IF BO(X,Y)<>Ø THEN GOSUB 825
    :GOTO 530'GPMK
545 X2=(X+X3)/2:Y2=(Y+Y3)/2'GRVQ
550 IF SGN(BO(X2,Y2))<>-Z THEN GOSUB
    825:GOTO 530'ITXN
555 IF SGN(Y3-Y)=Z AND ABS(BO(X3,
    Y3))=1 THEN GOSUB 825
    :GOTO 530'KAYV
560 GOSUB 820:GOSUB 375'CHPH
565 BO(X2,Y2)=Ø:BO(X,Y)=BO(X3,Y3)
    :BO(X3,Y3)=Ø:X3=X:Y3=Y
    :FOR X=1 TO 8'IAKC
570 IF BO(X,1)=-1 THEN BO(X,1)=-2'GQYN
575 IF BO(X,8)=1 THEN BO(X,8)=2'EQCR
580 NEXT'BAEH
585 GOSUB 360:GOTO 385'CHLO
590 A=PEEK(53249)-145:IF ABS(A)<33
    THEN 6ØØ'HUFQ
595 A=PEEK(53249)-145:IF ABS(A)>7
    THEN GOSUB 6Ø5:GOSUB 66Ø
    :GOTO 595'KCWY
600 GOTO 66Ø'BDLB
605 A=1:Z=1:C=Ø:IF S1<S2 THEN A=A+Z
    :Z=-Z:C=4'LWIS
610 PRINT"[HOME,WHITE]PLAYER #"A"
    [LEFT], YOU NEED TO REMOVE"
    :GOSUB 825'CFHL
615 PRINT"PIECES UNTIL BALANCED."'BAMM
620 D=Ø:FOR Y=1+C TO 4+C:FOR X=1 TO 8
    :IF SGN(BO(X,Y))<>Z THEN NEXT:NEXT
    :GOTO 65Ø'RDRT
625 Q=TU:TU=A'CHEK
630 GOSUB 425:IF SGN(BO(X,
    Y))<>Z THEN GOSUB 825
    :GOTO 63Ø'IVHM
635 IF Y<1+C OR Y>4+C THEN GOSUB 825
    :GOTO 63Ø'JNPQ
640 TU=Q'BDVF
645 BO(X,Y)=Ø:X3=X:Y3=Y:GOSUB 82Ø
    :GOSUB 375:GOSUB 36Ø:GOTO 385'HHCU
650 P1=1:P2=Ø:IF A=1 THEN P2=1
    :P1=Ø'HRWN
655 GOTO 675'BDRL
660 P1=Ø:P2=Ø:FOR Y=1 TO 8
    :FOR X=1 TO 8:IF BO(X,
    Y)<Ø THEN P2=P2+1'NESV
665 IF BO(X,Y)>Ø THEN P1=P1+1'FNVR
670 NEXT:NEXT'CBLI
675 IF P1=Ø THEN GOSUB 375
    :PRINT"[HOME,BLACK]
    PLAYER #2 WINS!!!"'FHXV
680 IF P2=Ø THEN GOSUB 375
    :PRINT"[HOME,BLACK]
    PLAYER #1 WINS!!!"'FHXR
685 IF P1=Ø OR P2=Ø THEN 76Ø'FJTS
690 P1=1:P2=1:Z=1:IF TU<>Z THEN
    Z=-Z'JQST
695 FOR X=1 TO 8:FOR Y=1 TO 8
    :IF SGN(BO(X,Y))<>Z THEN 745'LVXA
700 A=-1:B=1:IF BO(X,Y)=1 THEN
    A=Ø'HQTJ
705 IF BO(X,Y)=-1 THEN B=Ø'FKML
710 FOR X4=-1 TO 1:FOR Y4=A TO B
    :X1=X+X4:Y1=Y+Y4'LVDO
715 IF X1=X OR Y1=Y OR X1<1 OR X1>8
    OR Y1<1 OR Y1>8 THEN 74Ø'NVLV
720 IF BO(X1,Y1)=Ø THEN 755'DNNH
725 IF SGN(BO(X1,Y1))=Z THEN 74Ø'EPEN
730 X2=X4*2+X:Y2=Y4*2+Y
    :IF X2<1 OR X2>8 OR Y2<1 OR Y2>8
    THEN 74Ø'PEDV
735 IF BO(X2,Y2)=Ø THEN 755'DNPN
740 NEXT:NEXT'CBLG
745 NEXT:NEXT:P1=Ø:IF TU=2 THEN P1=1
    :P2=Ø'IQNS
750 GOTO 675'BDRH
755 RETURN'BAQL
760 POKE 198,Ø'BFXI
765 Z=5:DZ=-2:POKE S+4,33'FMJS
770 POKE S+1,Z:Z=Z+DZ:Q=-2
    :IF DZ=Q THEN Q=6'KSVT
775 DZ=Q:IF Z<1ØØ THEN 77Ø'ELWS
780 POKE S+4,32'CFNL
785 IF FN B(1)=16 THEN 785'EJMS
790 PRINT"[WHITE]PRESS A FIREBUTTON
    TO REPLAY"'BARS
795 IF FN B(1)=Ø THEN 795'EIIT
800 GOSUB 375'BDSD
805 IF FN B(1)=16 THEN 8Ø5'EJFL
810 RUN 15'BCOD
815 POKE S+4,33:FOR K=1 TO 5Ø:NEXT
    :POKE S+4,32:RETURN'JSXR
820 POKE S+11,33:FOR K=1 TO 5Ø:NEXT
    :POKE S+11,32:RETURN'JUPN
825 POKE S+18,33:FOR K=1 TO 5Ø:NEXT
    :POKE S+18,32:RETURN'JUES
```

END

Continued from page 20

mission and difficulty level (Cadet, Wingman, Flight Leader, Squadron Commander or Ace of the Base—just like in *Skyfox)* and traveling around Cygnus, destroying enemy ships, protecting your starbases and completing your mission during this navigation.

Skyfox II is actually easier to play than the original game. And there is a lot more for you to do in *Skyfox II.*

The missions vary in difficulty and length of time needed to finish. Four of them are rated at a very low-risk level (Xenomorph Uprising, Incoming, Intruder Alert and Guardian), two are low risk (Grizzly Encounter and Diplomatic Immunity) and the rest are at a moderate risk (War!, Spy Versus Xenomorphs, Xenomorph Juggernaut and The Boondock Expedition). Each has a unique goal, which can be as simple as destroying a selected enemy starbase and ships or as complex as finding and docking with the lost starbase Boondockia.

A nice touch is the inclusion of a descriptive mission summary and evaluation at the end of each game that tells you just how badly you have done. In *Skyfox,* each scenario just built upon the statistics of the previous game, leaving no end in sight.

An inclusion in *Skyfox II* that also serves as a copyright device is the map of Cygnus on an X-Y plane. The map singles out every starbase and wormhole, as well as the headquarters for the two forces. In order to repair your ship and replenish energy and shields, you must dock with a friendly starbase. It's easier to dock in *Skyfox II* than in *Skyfox*—you enter the first four letters of the name of the base by looking at the coordinates on the screen and finding the appropriate base on the map. This scheme acts as a good protection device, but more importantly familiarizes you with the starbases in the Federation Star Guard.

Putting all of this space jargon aside and forgetting all comparisons with the original, *Skyfox II* stands alone as a strategic/arcade action space game. All in all, I would put *Skyfox II* on a Christmas list for anyone who likes a good challenge that doesn't require too much thought and includes a lot of ship-blowing action. ■

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Pulling back gradually decreases speed, while pushing forward slams on brakes. This last maneuver is helpful for avoiding deadly off-road obstacles.

A dashboard at the bottom of the screen features a game clock, speedometer, tachometer and an icon display of ten truck parts (oil, gas, radiator, etc.) Icons change color (green, blue and yellow) according to their condition.

Damages may be repaired at various checkpoints throughout the race. Often you will be forced to stop due to a general breakdown. A damage screen indicates the severity of the problem and the tools needed to fix it. "Make-do" repairs without the correct tools will get you back on the road, but with decreased endurance. Be careful: These makeshift repairs usually come back to haunt you later in the race.

The game's graphics are clean and colorful, but lack the textured feel necessary to simulate harsh off-road conditions. The truck, viewed from the standard rear-end perspective, is also rather blocky. The twisting 3D road/horizon effects are nicely done, especially when hills are encountered. My biggest complaint is the inability to leave the outlined "road." This is *off-road* racing, after all. Much of the challenge is to get from "Point A" to "Point B" any way you can.

The most interesting feature of the game is the wide variety of random terrain hazards. These include everything from old tires, rocks, boulders, logs and tree trunks to snakes, potholes, puddles and skeletons (human and otherwise). Hitting an obstacle sends your truck bouncing, flying and flipping over the road. The exact reaction depends on the obstacle and your speed. Crafty drivers can use airborne abilities to avoid other contenders. Flipping your truck end-over-end is handled with great animation and a wonderful comic flair.

One too many bumps with a heavily damaged truck can be disastrous. Likewise, running into a solid object off the side of the road will instantly explode your rig. If you run out of gas, can't make repairs or destroy your truck three times, the race is over. If you finish, however, enter your name in the 4×4 Hall of Fame.

4×4 Off-Road Racing keeps players on the edge of their seats with a sizeable number of interactive skill levels, strategic options and demanding play action. Arcade racing fans will find a lot to like here. ■

by Matt Freeman

Digging Through History

Amiga Helps Uncover Anglian Village

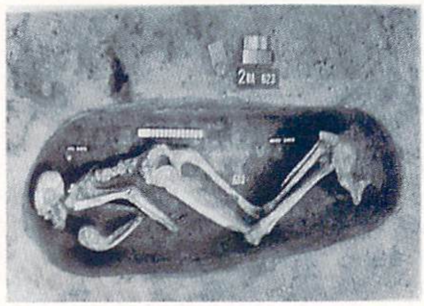
In 1977, operations at a quarry in northeastern England uncovered a number of early Anglo-Saxon graves. Several years later spotters in airplanes flying over the surrounding farmlands discovered traces of a village from the same period: the fifth and sixth centuries A.D.

Archaeologists were excited, because an Anglo-Saxon (sometimes called Anglian) village had never before been found together with a graveyard. The site had the potential to shed new light on the Dark Ages, one of the least-understood periods of English history.

But the effort to excavate the site—the Heslerton Parish Project—has a tight schedule and a tighter budget. So scientists seeking to learn about England's past have made the most of their limited resources by using the most advanced computer technology—including the Amiga.

Project director Dominic Powlesland travels extensively, giving lectures about the site. He brings along examples of the thousands of photographs taken at the site—photos that are digitized with NewTek's Digi-View and then stored and cataloged on the Amiga. A slide flashes on a wall during one of Powlesland's lectures. It shows the skeleton of a corpse that clearly had been dumped, rather unceremoniously, into its grave. Each of these graves yields about 200 pieces of information. "This I look at not so much as a skeleton," Powlesland says, "but a pile of data."

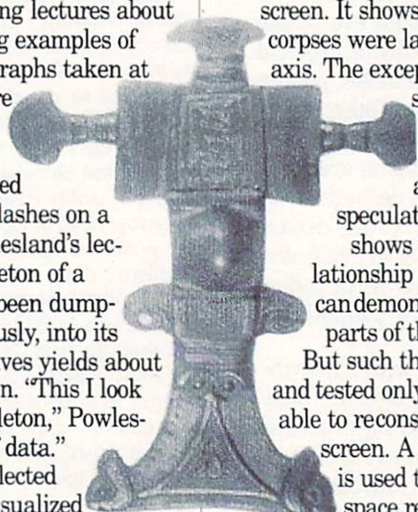
Another slide: the collected pieces of a broken pot, visualized by *Digi-Paint* from Newtek. "If you record the information in enough detail, there is potential to reconstruct the pot from its broken bits," Powlesland says. The next slide shows the pot as it would have appeared whole. It is a graceful piece of work, with a bold, angular decoration—something like classical Greek pottery.



"This I look at not so much as a skeleton," Powlesland says, "but a pile of data."

There are many reasons why the archaeologists work quickly and efficiently. One is the sheer mass of records to manage. The dig already has produced about 10,000 artifacts and other objects, mostly shards of pottery. For these finds, the researchers record 70 or 80 pieces of information. For the vast numbers of animal bones, with their irregular shapes, there are more than 100 computer fields to log.

Exhaustive logging of information makes it possible to reconstruct the entire site, using software that can scan the area as it is visualized on-screen, zooming from a one-centimeter to a 10-kilometer view. Powlesland loads some disks, and a representation of the graveyard comes onscreen. It shows that most of the corpses were laid out on an east-west axis. The exceptions might have had something to do with the time of year and its relation to astronomy, Powlesland speculates. This supposition shows that the spatial relationship of artifacts and objects can demonstrate how different parts of the site were used.



But such theories can be created and tested only if researchers are able to reconstruct the site onscreen. A variety of techniques is used to measure and record space relationships. When objects such as pottery shards, animal bones and artifacts are found at the site, their position is logged with a Kern Electronic Distance Meter, a theodolite fitted with infrared or laser measuring devices. Then workers use hand-held computers to record a wide range of information about the object and the place it was found. Finally, objects are tagged and bagged.

Powlesland merges the information logged on the hand-held computer with the objects' three-dimensional coordinates, storing the numeric data in a Commodore PC 40. [***Editor's Note:*** *The PC 40 is marketed in Europe and Canada.*] Graphics are handled by the Amiga, and the two computers interface using database software Powlesland wrote himself. He plans eventually to move the entire body of information to the Amiga.

The database can be manipulated to show relative positions for objects in a particular area, to display different colors for objects of different ages, or to provide, with a single mouse-click, all 70 or 80 pieces of background information for a particular find.

"We record the location of every single artifact," Powlesland says. "Except for gold bars, which we pocket."

That's probably a joke, but the dig does have a limited budget. Funds are provided by England's Historic Buildings and Monuments Commission, but Powlesland has received equipment and technical assistance from a number of companies, including Commodore.

"We are doing weird and wonderful things, some of which are very demanding of the hardware," Powlesland says. A researcher might want to study a ditch on the site, looking for significant patterns in the artifacts, rubbish or remains of vegetation found there. Between the computer's database and graphics capabilities, the researcher can view that ditch—and all the background information for everything found there—right on the monitor. "You can effectively get into the ditch and walk along it," Powlesland says, "looking at 10 centimeters each time."

The researchers can use these computer systems to scrutinize the site in near-microscopic detail. They have, for instance, logged the location of every type of snail found there. Snails live in certain well-defined habitats, and their distribution patterns can help researchers reach conclusions about the location of hedges, for instance, or other facets of the site's layout.

The archaeologists have used a balloon to carry video and still cameras into the air over the site, and Powlesland anticipates using Amiga video-editing and multitasking capabilities to manipulate all

Powlesland uses *Digi-Paint* to enhance these photographs, making color differences more distinct or changing oblique views to vertical.

these images at a single workstation—simultaneously.

Amiga graphics are also used to analyze visual data. The Anglo-Saxon village was discovered in 1982, during aerial surveys of the area. Historic earthworks, such as dikes or trenches, are often so eroded that they are visible only from the air, as shadows. Aerial surveys also reveal crop marks—places where the buried remains of ancient walls or ditches affect growth, causing a change in the height or color of plants. Powlesland uses *Digi-Paint* to enhance these photographs, making color differences more distinct or changing oblique views to vertical.

Metal corrosion in some places has preserved scraps of textiles. After the weave is examined under a microscope, the appearance of Anglo-Saxon clothing can be reconstructed with Amiga graphics programs.

"I think the air photographic enhancement is very big, very important," Powlesland says. "Or being able to reconstruct the textiles. It'd take you hours to do that with a paintbrush."

But more than simply manipulating images, Powlesland believes the Amiga is a part of a whole new approach to storing, organizing and analyzing archaeological data. That new approach, according to Powlesland, consists of looking at data—literally—in visual terms. "I think there's been too much concentration on statistical methods in the past," Powlesland says. "Now we're dealing with a human landscape, which isn't necessarily predictable anyway, and I see it as a visual thing. The very best way of filtering visual data is to use the eye. Ultimately, it is the real window."

The researchers look forward to having the Amiga do the preliminary stages of data analysis. "Ultimately, we would like to investigate pattern recognition," Powlesland says. "First of all, that will be directed toward looking at buildings, where we've got lots of postholes. How many square buildings and rectangular buildings do these make up? The Amiga can do that, and I can't. I mean, I can do it, but it will take all day. It's a hopelessly time-consuming, random task. Whereas, the machine can go through them. Then, we can test them, and say 'Right, is there any reason to look at the material?' Once the Amiga has pored over the visual data and discovered all the patterns there, the human researchers can decide which patterns are accidental, meaningless—and which are significant. The posthole patterns and other information about buildings at the site serve as the starting point for wire-frame models visualized on the Amiga with computer-aided design software. Powlesland demonstrated how the buildings can be examined from different angles, and "painted" with graphics software such as *Digi-Paint* to resemble the fifth- and sixth-century originals.

Powlesland admitted, with a laugh, that the researchers use the Amiga for game-playing in moments of relaxation. *Marble Madness, MindWalker* and *Flight Simulator* help release the pressure. Powlesland himself is interested in music, and would like to explore the Amiga's musical capabilities someday—when there's time.

But for now, there's no time to waste. The excavation—mostly done by volunteers who are at the site for just a few weeks at a time—only goes on for about eight months each year. During the other four months, project managers must write up their results and produce publications, using the Amiga for word processing, reconstruction drawings and educational illustrations.

"We have to maintain a momentum," Powlesland says. "Without computers, there's no way we could contemplate that."

When the project's allotted time has run out, agricultural work will resume at the site. Powlesland describes the work with terms such as "rescue excavation" and "rescue archaeology."

So it is not enough to dig up and carry away all the objects at the site. The finds will provide insights into Anglian society only if researchers can recreate and examine the objects and the area. Three-dimensional surface mapping, solid modeling, digitized photo enhancement—all of them help to make that possible.

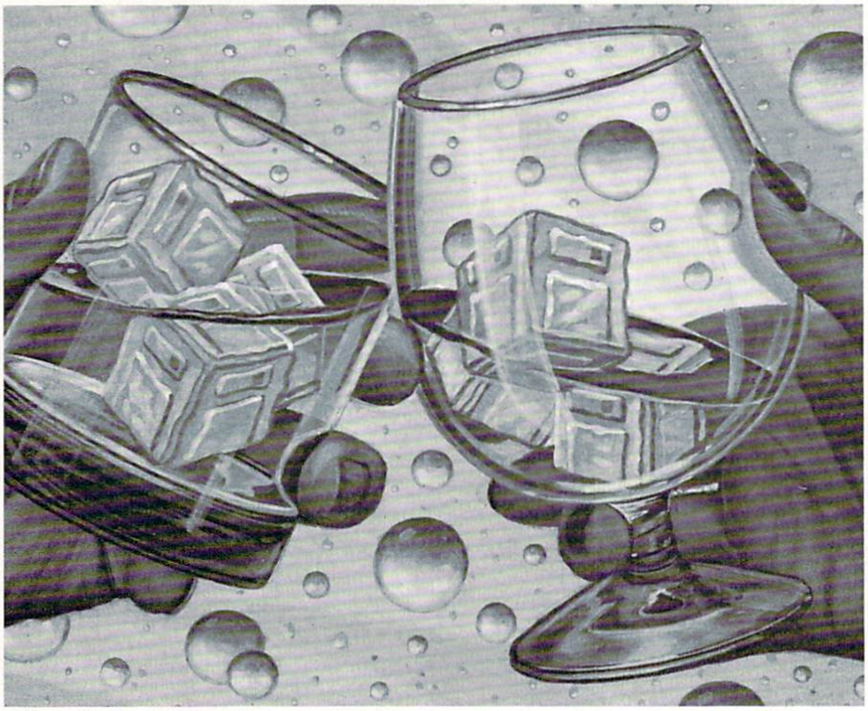
"We're in a situation where the hardware will do the job," Powlesland says. "So let's go for it now." C

by Graham Kinsey

Amiga Public Domain

This month I don't have any new Fish disks to talk about, however there are plenty of programs from PeopleLink and local BBS's. Some of the highlights this month are VScreen, which will create huge virtual display screens for you, and ScreenX, a handy program that will save a screen to an IFF file and do many other nice things as well. There is also another important update to VirusX, the best of the virus detection/elimination programs.

For each program, the author is given when it is known. If I obtained a PD program directly from PeopleLink's AmigaZone, the AmigaZone download file number is listed (if no file number is given it may still be available on PeopleLink, but I obtained it somewhere else). When a public domain program has been classified as shareware, this is also mentioned, with the suggested amount.



ED SAUK

Orbit3D: by Richard Horne
(AmigaZone file #12058)

A simple-looking yet challenging space game. The object here is to pilot a spaceship around a black hole, while defending your mother ship from asteroids that are constantly being pulled towards the black hole. While your ship does have a supply of torpedoes to destroy asteroids that come too close, you must constantly dock with the mother ship to replenish your supply of torpedoes, as well as fuel and oxygen reserves. Docking must be performed very carefully, since if your ship closes in on the mother ship too fast you can bounce off of or even crash into the mother ship. The main focus behind Orbit3D is orbits, and the ability to change orbits quickly and precisely. Orbit3D has great digitized sound effects, as well as a special 3D mode for those who own red-blue 3D glasses.

Peel: by Andy Lochbaum
(AmigaZone file #12079)

If you are looking for some strange ways to show IFF pictures, Peel will show a 320 × 200 IFF picture then "peel" it off the screen. Peel will only work with 320 × 200 pictures due to the huge amount of CHIP memory the program requires. The program turns on interlace (since it was created with video in mind), and cannot be exited once it starts.

ScreenX: by Steve Tibbett
(AmigaZone file #12151)

ScreenX is a utility program whose main purpose is to capture a screen and save it as an IFF picture. ScreenX does this in a very convenient manner. First, ScreenX doesn't require you to pop/push the screen you want to save to the front, or even click on the screen. Instead ScreenX displays a list of all screens that are currently open. To capture a screen, all you have to do is to select the particular screen from the current list and select the Save Screen to IFF File gadget. ScreenX by default will save the created IFF to RAM:, but you can tell ScreenX where (and with what name) you want the screen saved if you choose.

ScreenX also makes it easy for you to view any screen. There are gadgets to bring any screen to the top or the bottom of the stack, plus a very interesting option that will cycle all open screens (when this function is selected each screen is pulled up from the bottom and shown, then sent to the back in succession). If you want to impress your friends with the Amiga's multiple-screen capability, this function is very good at demoing this unique capability of the Amiga.

There is an option to close any screen that is open (for those who don't own GOMF, this option will allow you to get rid of screens of a program that has crashed). There is an option to print screens instead of saving them to an IFF file. Another nice option is a Screen Info gadget that will report on such things as how many bitplanes are being used, how much memory it is using, how many windows are open in that screen, how many gadgets are placed somewhere within that screen, and what font the screen is currently using. Finally ScreenX can be made to shrink down into a tiny title bar. In this "sleep" mode, the normal ScreenX window is replaced by your average clock/free memory title bar type of display.

ShowFont: by Arthur Johnson, Jr.
(AmigaZone file #11970)

If you work with fonts often and are tired of using a desktop publishing package or Notepad to view the contents of a font, ShowFont can quickly display the entire contents of a certain point size font. A scroll bar is available for taking a look at large fonts, since they may be too large to fit in the window all at once.

SpaceLog: by Gene Heitman
(AmigaZone file #12522)

This is an educational AmigaBASIC program that displays a history of the

man-related space missions undertaken by both the U.S. and the USSR from 1959 until the present day. For each flight, various pieces of information are provided including the name of the flight, the launch site, payload weight, orbital apogee and perigee, and orbital period. A short comment is also included in the data for each flight.

SpaceLog has options to sort all the missions by date, nation, site, mission or vehicle, as well as to print all missions again with these sorting options available. There are also options to graph certain data such as how many missions each nation launched each year. The graphs are either bar or line graphs, and while not impressive looking they get the job done.

Information on 337 missions is provided with the default data file, but you can add to this list or create separate mission data files and have the program load them for display and/or editing.

VT220: by Michael Leibow (AmigaZone file #12008; Shareware: amount not specified)

This is Meshugena, a VT-220 terminal emulator program. Some of the features include multinational character sets, eleven different terminal modes, 132-column support (via a compressed font), multiple sessions and a transcript buffer. There is also an Iconify-type gadget that will shrink the Meshugena window down into an icon that can be restored with a double-click of the mouse.

MakeANIM: author unknown (AmigaZone file #11903)

This program is similar to GrabANIM (reviewed last month) except that MakeANIM works with stored IFF ILBM pictures instead of actively displayed graphic screens. The pictures you would like to transform into an ANIM animation need not be in the same directory (they can even be located on different disks, so long as the full path name is given in the script file), but they must all have the same resolution and color palette.

VScreen: by Davide Cervone (AmigaZone file #12097)

If you yearn for some way to increase the resolution of your Amiga and that of the software you run, and using the overscan portion of your monitor (via MoreRows) isn't enough, then there is a more drastic alternative. Davide's VScreen program allows you to open screens that are up to 1024×1024 pixels in size. Although you can't view such a large screen at once, all you have to do to scroll around a VScreen-enlarged screen is to move the mouse pointer to the edge of the screen, and the screen will automatically start scrolling.

Not only can you use this program to open a huge Workbench screen, but you can also use it with many commercial programs. For example, with VScreen you can open giant *Scribble* or *WordPerfect* windows that can display an entire printed page at once. For those programs that don't normally take advantage of oversized screens, VScreen comes with four programs that can force most of these programs to open huge screens and/or windows.

It must be noted that VScreen does some highly illegal things concerning Intuition, and Davide warns you to use this program at your own risk. However, if you really need displays approaching 1024×1024 pixels, VScreen is (at this point) your only choice.

AVCUG Demo: by Scott White and AVCUG (AmigaZone file #11740)

This is a musical slide show demo put together by the Antelope Valley Commodore Users Group. Although the quality of the pictures wouldn't impress most Amiga users, the very nice sound effects help to make up for this.

730×478: by Scott Crane (AmigaZone file #11750)

Provided in this archive are two start-up-configuration files that are set up to use overscan of either 730×239 or 730×478 resolution. Also in this archive is a text file for those who own the A1080 monitor. This text file explains how to adjust the horizontal width of the 1080 monitor by opening the monitor case (which, by the way will void any warranty in effect.)

BridgeClock: by John Breen (AmigaZone file #11789)

This set of files will automatically set the MSDOS clock on the Bridgeboard every time the Amiga 2000 is booted. Included are an example AUTOEXEC.BAT file as well as a GWBASIC program that does the actual work.

Documentize: by Mike Scalora (AmigaZone file #12314)

For *WordPerfect* owners, this *WordPerfect* macro will convert standard Amiga text files into *WordPerfect* format.

MultiView: by Wayne Houge (AmigaZone file #12346; Shareware: amount not specified)

In addition to being able to view pictures in many different formats, MultiView can also read a file in one format and re-save it in another format. In addition to IFF ILBM, MultiView also supports ACBM (AmigaBASIC), SPUT and SBOB (which are two custom AmigaBASIC formats written by the author), plus the Atari ST DEGAS and NEOchrome formats as well as the Macintosh format.

The most unique feature found in MultiView is that it can attempt to pull out a picture that is buried within the executable code of any program, although it helps greatly if you know where the picture is stored in the code, or if you can tell MultiView the size and number of bit planes the picture should be.

Finally, let me tell you that Wayne has a unique way of "reminding" you that the program is shareware! So, don't be surprised (and don't worry) if strange things start to happen when you select one of the gadgets.

ShowOpenFiles: by Ed Scherer (AmigaZone file #12283)

This program will tell you if any files and/or directories are currently open (based on AmigaDOS file locks) by any program or system function. In addition to the obvious usefulness for programmers, ShowOpenFiles can be useful when you want to dump the contents of a RAMdisk to a floppy (for example, while downloading via a batch protocol, or if you have started compiling a program) but you are not sure if any files in the RAMdisk are currently being read from or written to.

ConmanRev: by Bill Hawes

This archive contains a revision to some of the files found in version 1.1 of Bill's CLI enhancement program Conman (reviewed in the July 1988 installment of this column). Some of the added features include an option to specify a minimum line length to be stored in the history buffer. The Conman handler will also send Control-C codes to any task that attempts to write to a Conman-enhanced console after the window has been closed via the close gadget. There are also a couple of bug fixes.

Float: by Khalid Aldoseri

This program will free any icons that have been frozen in place with the Workbench SnapShot function. If your Work-

bench screen has a non-standard display size (for example, if you are using overscan) you may find this option quite handy.

Globus: by Ken Baer
(AmigaZone file #12289)

A nice 3D animation of a polished piece of granite. This animation was created with *Animator: Apprentice* by Hash Enterprises. Globus is an impressive demo (especially considering the rendering time and amount of work that was required) of what *Animator: Apprentice* can do.

HamK: by Greg Searle

Yet another kaleidoscope program which is noteworthy since it uses HAM as its graphics mode.

Macsound: by Mike Scalora
(AmigaZone file #12170)

For those who access the Macintosh public domain world, here is another program that allows you to port over Macintosh data files to the Amiga. Macsound will convert Macintosh sound to Amiga RAW format. Please note this is not IFF's 8VSX format, so you will still have to convert the sound file to IFF format (or for *Sonix* owners, RFF format) if that is what you need.

ProtoComm: by Julius Frazier

The only difference between this program and Dan James' Communicator (version 1.34) program is that the powerful protocol Zmodem has been added. All the other protocols have been disabled in this program. Since this program doesn't come with documentation those who are unfamiliar with Communicator will have to obtain that program and read its documentation instead.

Tiles: by Todd Lewis
(AmigaZone file #12496)

For those who were addicted to the game *Shanghai* by Activision, here is a poor man's version of that mahjong contest. Tiles has virtually none of the many options found in *Shanghai*, but Tiles has a totally different set of pictures for the tiles, including many computer-related pictures.

Vid3DFix: by Aegis Development
(AmigaZone file #12673)

Due to a small bug in version 2.0 of *VideoScape 3D*, some garbage data exists in every ANIM animation that is created by *VideoScape 2.0*. Vid3DFix will remove this garbage data from an ANIM animation. Although this garbage does not hinder ShowANIM's performance, it can confuse non-Aegis ANIM players.

C64: by Eddy Carroll
(AmigaZone file #12590)

When you load this program, it appears to be a real Commodore 64 emulator. However, the response the emulator gives when you input a command isn't quite what you would expect! The author says that since this program was easy to write he may actually write a *real* BASIC 2.0 emulator. Such an emulator would run rings around any of the commercial 64 emulators, since this emulator would be a BASIC 2.0 interpreter written in 68000.

Contoura: by A.G. Kartsatos
(AmigaZone file #12218; Shareware: $15)

A graphing program that plots functions of the type Z=F(X,Y), using 31 colors to display ranges of Z values. A default function is provided, but you can of course write your own function and use that instead. There is no error checking for custom functions, so you have to make sure that a function you write can't create an error like a negative value under a square root sign. Ranges can be set for each of the three variables. You can quickly preview what the function will look like by setting the sample rate, which basically determines the resolution of the graphics screen. There are options on the plotting screens to zoom in and out, to center the graph on any particular point, as well as options for manipulating the color palette. You can not change any of the colors individually, but you do have great control over how the colors are mapped to various value ranges. You can also alter the amount of red, green and blue components found in any particular color, which is almost as good as complete palette alteration control.

MultWb: by Chris Bailey

This program, like Matt Dillon's MWB program, allows you to have more than one Workbench screen up an one time. The added feature in MultWb is that it will allow you to open a Workbench screen with a different resolution and/or a different number of bitplanes (up to three bitplanes). In addition to being able to have an eight-color Workbench screen, this program could be considered an alternative to VScreen. MultWb also allows you to use a lo-res Workbench screen.

NewInfo: by Steve Tibbett
(AmigaZone file #12366)

For those who are running BBS-PC, this is a replacement for the BBSINFO command. NewInfo always uses the entire caller log to build a statistics file, unlike BBS-PC which will usually create a stats file that covers just a few days. It also gives many pieces of information that aren't printed in BBSINFO's report file. For example, NewInfo will tell you how many messages are being left each day and the length of the average call. It also lists the top five people in the following categories: Uploaders, Sponges (callers who downloaded the most files), and Authors (callers who enter the most messages).

QMouse: by Lyman Epp
(AmigaZone file #12670; Shareware: $10)

If you like multi-utility utility programs like Mach or DMouse, but you have a major lack of space problem on your boot floppy, QMouse is a smaller alternative. Written in assembly language, Qmouse is only 2824 bytes in size, which translates into a measly six blocks on a floppy disk. Although QMouse does not duplicate every feature found in Mach or DMouse, it does include mouse acceleration, screen blanking, NewCLI hotkey, blanking pointer and WindowToFront features. It also has a tiny clock built in to it.

Savemoney: by Steve Pietrowicz
(AmigaZone file #12609)

Intended for those who use PeopleLink, this program demonstrates how much money you can save by using Telenet's *PC-Persuit* program to log on to PeopleLink. You may be surprised to find out that you can save yourself a sizeable sum by logging on to PeopleLink via *PC-Persuit*. For those who don't use PeopleLink (since this program assumes you are already using PeopleLink), let me mention that the flat rate for using PeopleLink via *PC-Persuit* is $3 per hour at *any* baud rate. (Yes, even at 2400 baud!)

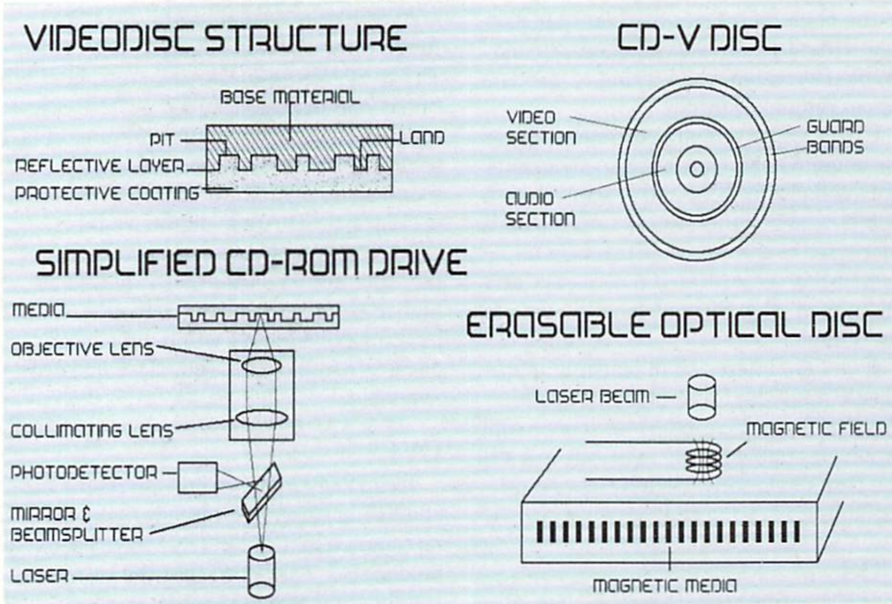
AUS: by George Bailey
(AmigaZone file #12595; Shareware: $15)

AUS is a great example of an interactive *Director* demo, a must-see. This is a demo of a shareware graphical database that was created with *The Director*. When you load the demo you first see an impressive hi-res picture rendering of the conti-

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Optical Disks for Data

by Matthew Leeds



The first computer I owned, a Commodore 64, used a cassette recorder for data storage. Computer programs were short—five or ten kilobytes—and load times were a few minutes. As programs got more sophisticated, I upgraded to a floppy disk drive. Programs grew in size to fill the memory of my 64K computer and then overflowed as programmers began to use overlays, swapping data to and from memory and the disk drive. My 170K disk drive soon felt cramped.

I upgraded my computer to an Amiga. The computer had 512K of memory and floppies that held just under a megabyte of information. I was certain that this was more space than any conceivable application could require. Then I bought my first game that used two disks. The writing was on the wall.

I now own a 20MB hard disk and 3.5 MB of memory installed in my Amiga. When I first got the additional hardware I was certain I would never use it to its capacity. Some things never change.

That quantum leap from a floppy disk drive that handles less than 200K to a 20MB hard disk drive is about to be equalled by a new technology—optical disks. The same technology that video laserdiscs and audio compact discs use is migrating to computers in a variety of forms. Within the next few years at least one type of optical disk technology will be connected to your computer: CD-ROM, Interactive videodisc, CD-I, CD-V, DVI, WORM; just which one is still very much up in the air.

Basic Technology

The basic technologies for optical disks, regardless of type, are similar. A solid-state laser sends a beam of coherent light through a diffraction grating or beam splitter. One of the resultant beams is used to read data from the optical disk, and the other beams are used as tracking and focusing guides. The main beam is guided via a set of mirrors, prisms and lenses to the surface of the optical disk. The disk contains a series of pits that represent the stored data in a spiral track. The difference in reflectance between the surface of the disk and the pits can be measured by changes in the reflected laser beam.

The laser beam is kept accurately aligned with the spiral track via a tracking mirror. The tracking beams are also focused on the surface of the optical disk, and variations in their relative intensities are interpreted to aim the tracking mirror. Changes in the shapes of the tracking beams are detected via photo diodes and used to control a servo mechanism that maintains correct focus by adjusting the objective lens.

Laserdiscs

The first consumer products that used optical disks were laserdiscs. These were optical disks that contained video. Laserdiscs never made a big hit in the consumer market because they were not recordable. They did offer crystal clear still frames, over 400 lines of resolution, excellent stereo sound, slow motion and visible fast forward or reverse. They also offered much better wear than videotape (see Data Storage Life below).

They also offered random access to video information, something videotape could never offer. This was the saving grace for videodiscs. Since videodiscs offer perfect still frames and high quality audio, they became the medium of choice for interactive presentation of information. Laserdisc players can easily be interfaced to computers for programmed control of playback. Up to 54,000 still frames can be stored on a single videodisc with worst case access times under two seconds.

Interactive videodisc systems are currently used by many major industrial and educational institutions as training and reference workstations. Ford Motor Company, Hughes Aircraft, Farmers Insurance, Bank of America, Stanford and others have adopted interactive videodiscs for educational purposes.

An interactive videodisc authoring system is in development for the Amiga. It will simplify the design and creation of courseware for the non-programmer and takes full advantage of the Amiga's video and graphics capabilities.

CD-ROM

The first consumer application of optical disk technology to become an uncontested success was CD-Audio. In just a few years it has pushed the phonograph record into third place behind audio tape and CD's. While applications for CD-Audio are few in the computer field, the huge demand for CD-Audio players has brought the cost of production for the basic player hardware down dramatically. This has created an opportunity for low-cost CD-ROM players.

CD-ROM uses the same basic technology as CD-Audio, but instead of storing audio information as digital data and converting it back to analog audio during playback, CD-ROM uses the optical disk to store up to 550MB of digital computer data directly on a single 4.72-inch disk.

CD-ROM are Read Only Memory. They are excellent for distribution of large volumes of information that otherwise would be produced using traditional printing methods. Examples include encyclopedias, dictionaries, parts catalogs, medical references, maps and atlases. Most of the CD-ROM's being produced today adhere

to the High Sierra standard for data storage. This standard was adopted to avoid problems created when trying to use data across computer brands.

CD-ROM players are currently selling for under $1000. Hardware-specific units are available for IBM and Macintosh computers, and SCSI-interfaced units could be connected to the Amiga. Currently no vendor has yet written the necessary drivers to read High Sierra formatted data for the Amiga.

If you are interested in learning more about CD-ROM, I recommend *The New Papyrus* from Microsoft Press. This compilation was published in 1986, but it is still the best single source of information on the subject.

CD-I

It is a natural step to combine laserdisc, CD-Audio and CD-ROM into a single technology. Imagine full-motion video, stereo sound and digital data available on a single medium. This combined format is called CD-I, for Compact Disc Interactive. Sony and Philips are two of the major companies that have announced their intentions to produce CD-I players.

CD-I players will be stand-alone appliances that will include a monitor, audio speakers, some kind of input device (joystick, mouse, keyboard), and a CD-I drive. A standard for CD-I has been proposed, called the Green Book. It defines the hardware to be used in CD-I capabilities.

CD-I will have the ability to produce a variety of audio qualities and playing times including CD-Audio quality down to telephone quality, with the ability to have up to 16 separate audio channels. This multi-channel capability would be useful for multilingual productions.

CD-I also has several video resolutions. Motion video, still frames, computer animation, bit-mapped graphics, and video special effects are all possible. CD-I media will support NTSC, PAL and SECAM video, allowing a single disc to be marketed internationally. A single CD-I disc could contain up to 16 hours of audio, or over 7000 video still frames. Its data storage capacity would exceed 300,000 typed pages or a 20-volume encyclopedia. CD-I applications will include entertainment products (games that far exceed the best arcade versions), educational products (tutorials with live action and speech), consumer products (travel guides with pictures and sound), and business products (information analysis and training programs).

CD-V

A simpler hybrid of laserdisc and CD-Audio is the CD-V or Compact Disc Video. The same size as a CD-Audio disc, but tinted gold instead of silver, a CD-V disc combines a section with five minutes of laserdisc-quality full-motion video and sound and a section with up to 20 minutes of standard CD-Audio digital sound. CD-V discs require special players, since the video section of the disc is played at a higher speed than the audio section. Combination players that will handle laserdiscs, CD-Audio discs and CD-V disks are available.

DVI

Technology marches on, and its impact on CD-I has been felt already. Although no commercial CD-I players have been produced, it was hoped that the standardization announced in the Green Book specifications would encourage software manufacturers to start developing CD-I applications. But a new product announcement has confused the issue.

That new product is DVI, Digital Video Interactive, debuted last year at Microsoft's Second International Conference on CD-ROM by the David Sarnoff Research Center. DVI is no less than full-frame, full-motion video and digital audio, 72 minutes worth on a single 4.72-inch optical disc.

You should keep in mind that the full-motion video that CD-I is capable of is limited to a small portion of the screen. CD-I cannot transfer sufficient data to display full-screen, full-motion video.

DVI also offers 3D computer-generated graphics embossed with real video surfaces such as real plants in a garden in front of a computer-generated house, or a human face superimposed on a computer-generated character.

DVI technology is based on two VLSI chips: the pixel processor and the display chip. These two chips decode a compressed data stream coming from the optical disc. The compression is originally done via a minicomputer at the rate of one video frame every 30 seconds. This is a compression ratio of 60 to one for a moving full-frame image.

The tradeoff (what, did you think you'd get something for nothing?) is that the image is only medium resolution, around 256 × 240. This is adequate for consumer products, as most broadcast television is not much better.

Data Storage Life

All of these technologies are read only. Before I move on to writeable optical discs I want to cover data storage life. Optical media is inherently very stable. There is no physical contact between the media surface and the player, and surface scratches may mar the appearance of the disc, but they rarely affect the data beneath.

However, the loss of a few bits of data will not affect the playback of a laserdisc. Who would notice a tiny glitch in a single frame of video during a movie? The loss of the same amount of data from a spreadsheet or database could render an entire file unusable. Redundancy and error checking is an important and integral part of the development of optical disc data storage, and the acceptable error rates for data storage are much higher than those for video or audio data.

There is a blight on the land, and it is known as "laser rot." Laser rot is a delamination of the disc, a separation of the two sides of the disc. Other causes include contamination of the media during manufacturing, resulting in an oxidation of the aluminum coating covering the resin inner surface. This aluminum coating reflects the laser beam during playback. When it oxidizes its reflectivity lessens, lowering the signal-to-noise ratio of the reflected laser beam.

Laser rot was first seen on laserdiscs, and mostly on older discs. So far no reports of laser rot on CD-Audio discs have been heard. Laser rot on videodiscs results in snow on screen during playback. Laser rot on a CD-ROM disc would render it useless.

WORM Drives

A variety of writeable optical discs have been proposed, and several are currently marketed. The WORM (Write Once Read Many) disc is currently available for a number of computers including the Amiga. WORM drives can use several different approaches: organic dye, hole-forming or bubble-forming.

Organic dye WORM media uses photosensitive material that changes color when struck with a laser beam. A higher-powered write beam effects the change, and a low-powered read beam detects the changed color of the media.

Hole-forming WORM media is coated with an ablative reflective material. A high-powered write laser burns a hole through the coating exposing the underlying substrate which has a different reflective value.

Bubble-forming WORM media consists of a rigid substrate coated with a deforma-

ble material. When struck with the write laser beam the material both softens and generates a small amount of gas at the boundary between the substrate and coating. This creates a bubble that defocuses the read laser beam.

Erasable Optical Discs

The golden ring of optical disc technology is the erasable optical disc. Although no manufacturer has placed a product on the market yet, there have been several announcements; Tandy and Maxtor are two of the most notable. There are several strategies that have been proposed for erasable optical discs; phase change materials that shift from crystalline to amorphous and back or from flat to bumpy and back, but the most popular is thermo-magnetic-optic. This uses a thin film of magnetic media on a substrate. The magnetic media layers ability to be affected by a magnetic field changes with temperature. It is relatively immune to change at room temperature, but easily changed when heated. By applying a consistent magnetic field and heating only the areas to be changed with a laser beam, precise small areas can be magnetized. Erasure merely requires that the area to be erased be heated while an alternate magnetic field is applied.

Putting it All Together

As CD-ROM, DVI, WORM and erasable optical discs become available at affordable prices, computer manufacturers will adopt the technology. Imagine a home computer that had its operating system not in ROM chips or on floppy disks but stored on a built-in CD-ROM drive. Imagine the resources you would come to expect as standard: 500,000-word spell checker and thesaurus, world atlas, color illustrated encyclopedia, guided tours, tutorial and on-line help for the system with audio and full-motion video.

Imagine a disk drive with storage for 400MB of data on a single disk. Think of the computer-based animations, the amount of information that would become available at the touch of a key.

In the short term, both CD-ROM and WORM drives are available now, although not at prices everyone would consider affordable. Within the next one to two years however, prices will fall to the consumer level, and we will see a remarkable set of new applications that take for granted what seems today to be an unlimited amount of data storage. Some things never change. ◼

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nent of Australia, including the flag of Australia in the background. To the side are several buttons. When you click on one of the buttons a particular piece of information will be displayed. For example, if you click on the rainfall button an animated graphical representation of the yearly amounts of rainfall that fall on all the different areas of Australia will be shown. If you click on the Info button, various text information will be displayed about Australia, including the system of government, major cities, natural resources, life expectancy and common slang terms. If you are looking for a different type of *Director* demo, this is one worth looking at.

Runback2: by K. Mardam-Bey (AmigaZone file #12361)

This program is based on Rob Peck's Runback program that is used to start up tasks that are independent of the CLI. Runback2 has a major bug fix in that a path specification is no longer always necessary for commands that aren't in the current directory (like commands in the :c directory).

TimeSet: by Rich Martin

If you don't have a battery-backed clock in your Amiga but you always set the time upon bootup, TimeSet lets mouse lovers use the mouse to set the time instead of using the AmigaDOS DATE command.

Tower: author unknown (AmigaZone file #12411)

A nice *Sculpt/Animate 3-D* animation of a metal ball rolling down an S-shaped metal track built around a tower.

VirusX version 1.4: by Steve Tibbett (AmigaZone file #12625)

Steve has finished another important update to the premier virus detection/elimination program VirusX, last reviewed in the August 1988 installment of this column. Three new features have been added to version 1.4. First of all, VirusX will now destroy any copy of the SCA Virus in memory in addition to giving you the option of destroying its occurrence on a floppy disk. This is very convenient in that you don't have to shut off your Amiga or use another virus elimination program to rid yourself of the SCA Virus.

The second feature added is that VirusX now includes the features found in the program ViewBoot (reviewed in the September 1988 installment of this column), namely the ability to view as ASCII characters the contents of the two boot blocks on any disk. When the VirusX window is active, just hit either the 0, 1, 2 or 3 key that corresponds with the floppy drive (DF0:,DF1:,DF2: or DF3:) that you want to check, and VirusX will instantly display the contents of the two boot blocks of the floppy disk in the selected drive.

As if those two additions weren't important enough, VirusX also now checks for a new virus called the Revenge virus. The Revenge virus operates similarly to the Byte Bandit virus, with one big difference. Soon after the Revenge virus has installed itself in memory, it will transform your regular mouse pointer into a portion of the male anatomy. Needless to say, this may offend or embarrass many Amiga users. VirusX will eliminate this virus from memory if it finds it, and will allow you to remove it from a disk if VirusX finds it there.

I hope most of you are already running VirusX, since it is the only complete solution to protect your floppy disks from a boot block virus. One last note: If you should happen to obtain a new virus from someone, please send a copy of this virus to Steve. He can't update VirusX to protect against new viruses if he doesn't receive a copy of the virus from someone first!

Expect more of the same next month: the latest in Amiga PD programs off of PeopleLink's AmigaZone and local BBS's. If I'm lucky there might also be some new Fish disks to talk about. Also, next month I will tell you how you can help me to prepare the Best of Amiga PD awards for 1988 by giving me your suggestions as to which programs *you* think deserve recognition! Thanks to George Bailey for sending me a copy of his program AUS to review.

As always, I can be reached on the AmigaZone on PeopleLink (ID: G KINSEY), or on the IDCMP BBS (617) 769-3172 (300/1200/2400 baud, running 24 hours a day), addressed to SYSOP.

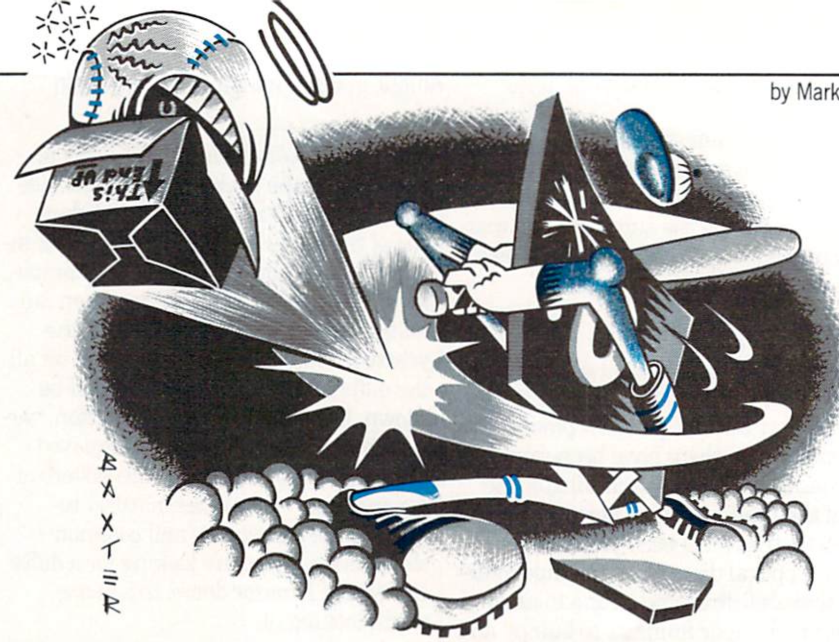
If you have written a public domain/shareware/freely distributable program, or have obtained one that you think is worth mentioning to all Amiga owners, then please attempt to contact me via the above or through *Commodore Magazine.* See you next month.

To sign up to PeopleLink and their AmigaZone, call them at:
(800) 524-0100 (voice)
(800) 826-8855 (via modem)

by Mark Jordan

Box Baseball

Explore the 128 in its powerful native mode. Some of the articles in this series may be technical—some not so technical—but we guarantee thay they will spark your creativity.



ART BAXTER

Ever played box baseball? I doubt you would know it by that name, but maybe you will once I describe it. Let us go back in time for a moment to the summer of 1965.

I am a sixth-grader with one main interest—baseball. I play a strategy baseball board game with my friends. I spend hours bouncing a rubber ball off the barn wall creating imaginary games with heroic finishes, announcing as I field the grounds and fire to first. I collect baseball cards.

Then I discover "arcade" baseball, a cross between baseball and pinball. It's a simple game in which a marble is pitched at you, the hitter, and you press a button which flips a flipper which sends the marble a-rolling. It rolls until it falls in a hole (there are lots of them out in the field). Hopefully, the hole it falls in is marked "single" or "double" or "triple." Unfortunately, these are the smallest holes. The really big ones—black holes, I call them—are always marked "OUT!" In the summer of '65, that's where most of my hits ended up.

Oh, I should mention another twist of the game: ramps. There were two of them and sometimes your marble will go up the ramp and over the fence for a home run. Ding, ding, ding! It was moments such as these that kept me dropping hard-earned quarters into the slots (or maybe it was dimes back then—I can't remember) until I ran out.

That's what gave me the idea to invent my own arcade baseball game. I nailed together a yard-square box and fashioned a crude pitching ramp that the marble could roll down. My flipper was an elaborate thing consisting of bent coat-hangers, nails and wood. Thanks to my neighbor's dad's hole saw, I got my holes drilled. I made my game a little more dynamic: the OUT!s were reduced in diameter considerably.

It worked. Awkward? You bet. Delicate? Very. But it worked and my friends and I started a league.

And that's how box baseball came into my life. Whether or not you ever played (or built) a similar game, you can now enjoy the fruits of my labor simply by typing in Box Baseball. All the elements are there—singles, doubles, triples, home runs, outs (yes, outs)—and more. Like the ability to switch-hit. Fastballs, curveballs, sliders and screwballs. Strikeouts and walks. Tiring pitchers. Occasional errors. Extra innings. Single or two-player games.

First, type the game in using the Magazine EntryProgram on page 125 to help you catch any typos. Save it before running it the first time in case there are still some bugs which might crash the program.

When you run it you'll be asked whether you want to play solitaire or with a friend. If you choose solitaire, you will still control two teams (Red and Blue), both pitching and hitting, but you'll only need one joystick plugged into port 2. If you choose a two-player game, the team to bat first will need the joystick in port 2.

The first time you run the program, the graphics screen will be drawn as you watch then it will automatically save to disk (it takes up 37 blocks, so be sure to use a disk with some extra space). Ever after, when you play, the screen will load directly from disk resulting in a much faster startup procedure. Sprites will do the same.

Pitching is accomplished by pressing the fire button. If you press UP and press the fire button, you'll throw a fastball. DOWN will produce a slowball. LEFT and RIGHT produce curves. The diagonal directions combine the effect: UP/LEFT produces a fast-curve, or a slider if you want to call it that. Beware of throwing all fastballs. Throw too many and they'll start losing their zip. Best advice is to mix up your pitches.

Hitting simply requires a press of the button. If you swing too early you'll swing and miss. If you wait a little longer but still are "out in front of the pitch," you'll pull the ball. For right-handers that means it's heading to left; lefties pull to right field. Inside pitches (the result of curveballs) will also be pulled. Swing late (or hit outside pitches) and you "push" that ball to the opposite field. It's all quite logical.

How to switch from left to right hitters? Press the space bar.

Foul balls are a distinct possibility. However, instead of an unlimited number of fouls, this game allows only two. The third one is a strikeout.

You can, if you wish, let pitches go by. If they're straight fast or slow balls, they'll be strikes. Curves may or may not be. It depends on whether they cross the plate. It pays to have a good eye.

Sometimes the infielders (four small black holes) will appear to make errors. A ball will come at them, go over them, and keep on going. Whether this is an error or simply a line drive over their heads is up to your imagination. At any rate, they sure are nice when you think you've just grounded out to short.

The games are nine innings long just like in the majors. And, like in the big leagues, if you are tied at the end of nine, you'll go extra innings.

Creating Box Baseball on the Commodore 128 was a dream. With the graphics commands available, I was able to make a box baseball game in 1988 that in every way surpassed my sixth-grade version. I hope you enjoy it as much as my family does. ■

Before typing this program, read "How to Enter Programs" and "How to Use the Magazine Entry Program." The BASIC programs in this magazine are available on disk from Loadstar, P.O. Box 30008, Shreveport, LA 71130-0007, 1-800-831-2694.

Box Baseball 128

```
10 TRAP 14Ø'BDHX
20 COLOR Ø,6:COLOR 4,6:KEY 8,""'DKXC
30 L$=CHR$(14):J(Ø)=2:J(1)=2:V1=8
   :V2=23:V3=1:V4=48:V5=96:V6=2ØØ
   :V7=255:V8=3:V9=5:VA=21:VC=279
   :VD=72Ø:VE=1Ø'RISE
40 PRINT L$"[CLEAR,BLACK]","[RIGHT3]
   1 OR 2 PLAYERS?":GET KEY A$
   :IF A$<>"1"THEN J(1)=1'IOGN
50 PRINT"[CLEAR]","[LEFT3,SHFT T]
   EAM TO BAT FIRST USE PORT 2"
   :PRINT"[SHFT T]AP SPACEBAR TO
   SWITCH BATTER RIGHT/LEFT"'CCVY
60 PRINT"[SPACE2,SHFT F]
   ASTBALLS - PUSH UP, [SHFT S]
   LOWBALLS - DOWN",,"[LEFT3,SHFT C]
   URVES - PUSH LEFT OR RIGHT"'BCKX
70 PRINT,"[DOWN,SHFT P]
   RESS ANY KEY TO BEGIN"
   :GET KEY A$'DEJM
80 GRAPHIC 1,1'BDHF
100 S(Ø)=5:S(1)=3:S(2)=4:S(3)=5:S(4)=6
   :S(5)=7:S(6)=6:S(7)=5:S(8)=4'JDJM
110 P(Ø)=33:P(1)=33:P(2)=1:P(3)=1
   :P(4)=1:P(5)=33'GNII
120 SH(Ø)=3:SH(1)=7:SC=7168'DUCD
130 BLOAD"[SHFT +]FIELD"
   :BLOAD"[SHFT +]SPRITES"
   :GOTO 4ØØ'DHBH
140 DCLEAR'BBTA
150 WIDTH 2:COLOR 1,2:DRAW 1,Ø,
   68 TO 163,188 TO 319,74
   :WIDTH 1'GETK
160 COLOR 1,7:FOR I=Ø TO 1
   :CIRCLE 1,159,95-I*14,17Ø,82,272,
   9Ø,1:NEXT:PAINT 1,159,5'JTYQ
170 COLOR Ø,2:CHAR Ø,4,3,"2B",1
   :CHAR Ø,35,4,"2B",1'DWKJ
180 COLOR 1,1:CHAR,9,Ø,"HR"
   :CHAR,3Ø,Ø,"HR"'DQDJ
190 FOR T=1 TO 5:READ C,N,A,B,A$
   :COLOR 1,C:COLOR Ø,1
   :IF C=1 OR C=1Ø THEN COLOR Ø,
   2'MGVS
200 FOR I=1 TO N:READ X,Y,C,D'ELCB
210 E=Ø:F=Ø:IF A$="3B"THEN READ E,
   F'GLRD
220 CIRCLE 1,X,Y,A,B,E,F'BNRB
230 PAINT 1,X,Y:CHAR Ø,C,D,A$,1'CQWE
240 NEXT:NEXT'CBLB
250 COLOR 1,1:BOX 1,Ø,156,92,186
   :BOX 1,225,156,317,186'DLCK
260 COLOR 1,2:CHAR,13,17,"[SHFT Q]"
   :CHAR,2Ø,12,"[SHFT Q]"
   :CHAR,27,17,"[SHFT Q]"
   :CHAR,2Ø,23,"[SHFT Q]"
   :COLOR Ø,6'GOSS
270 BSAVE"[SHFT +]FIELD",BØ,
   P7168 TO P16384'CQKK
290 SSHAPE BS$,Ø,Ø,23,2Ø:FOR T=1 TO 8
   :SPRSAV BS$,T:NEXT'GAHO
300 FOR T=1 TO 5:FOR I=Ø TO 63'GIGC
310 READ A$:IF A$="XX"THEN I=63
   :A$="Ø"'GLHF
320 POKE 352Ø+T*64+I,DEC(A$):NEXT'GOOF
330 SPRSAV T,X$(T):NEXT'CJMD
340 SPRSAV 4,6:SPRSAV 5,8'CJTE
350 FOR I=2 TO 4:GSHAPE X$(I),Ø,Ø'ENMH
360 FOR T=Ø TO 23:SSHAPE A$,T,Ø,T,2Ø
   :GSHAPE A$,319-T,Ø:NEXT
   :SSHAPE A$,296,Ø,319,2Ø'ISUR
370 IF I<4 THEN SPRSAV A$,I+2
   :ELSE SPRSAV A$,7'HOXM
380 NEXT:GSHAPE BS$,Ø,Ø
   :GSHAPE BS$,296,Ø'DSPL
390 BSAVE"[SHFT +]SPRITES",BØ,
   P3584 TO P4Ø96'CPHN
400 RESTORE 168Ø:FOR T=Ø TO 92:READ A$
   :POKE 3Ø72+T,DEC(A$):NEXT'JYNI
410 FOR T=1 TO 8:SPRSAV T,S$(T):NEXT
   :FOR T=2 TO 4:SPRSAV 1,T:NEXT
   :SPRSAV S$(2),5'LHEN
420 SPRITE 5,1,1:MOVSPR 5,172,229'CRUE
430 SPRITE 6,1,9:MOVSPR 6,1ØØ,58'CQXF
440 SPRITE 7,1,9:MOVSPR 7,25Ø,61'CQAG
450 MOVSPR 1,234,185:MOVSPR 2,177,145
   :MOVSPR 3,121,185:MOVSPR 4,178,
   233'ESSO
460 RN(Ø)=Ø:RN(1)=Ø:IN=1:EX=9:F(Ø)=Ø
   :F(1)=Ø'GIAP
470 IF BK=Ø THEN DIM BK(255):BK(Ø)=1
   :BK(112)=2:BK(96)=3:BK(64)=4
   :BK(17)=5:BK=1'KEOX
480 TRAP'BAOG
500 DO'BAJY
510 FOR TM=Ø TO 1:JP=XOR(JP,1)'FOYG
520 GOSUB 65Ø'BDOC
530 DO:GOSUB 87Ø'CEFE
540 IF TB THEN GOSUB 78Ø
   :ELSE GOSUB 73Ø'FJQI
550 LOOP WHILE OU<3'DDOH
560 IF IN>8 AND RN(1)>RN(Ø)THEN
   EXIT'GNPM
570 NEXT'BAEG
580 IN=IN+1:LOOP UNTIL IN>EX'FKSN
590 IF RN(Ø)=RN(1)THEN EX=EX+1
   :GOTO 5ØØ'GTTQ
610 COLOR 1,1:CHAR,11,24,L$+"[SHFT F]
   IRE TO PLAY AGAIN":SPRITE 5,Ø'ESTN
620 IF JOY(1)<128 AND JOY(2)<128 THEN
   62Ø'HPIJ
630 CHAR,11,24,"[SPACE18]":SPRITE 5,1
   :GOTO 43Ø'DQAK
650 FOR T=1 TO 3:SPRITE T,Ø:NEXT'FJHK
660 SK=Ø:BA=Ø:OU=Ø'DLWK
680 SPRITE 5,,SH(TM):X=XOR(TM,1)'DTKO
690 COLOR 1,1:CHAR,1,2Ø,L$+"[SHFT I]
   NNING:"+LEFT$(STR$(IN)+" ",3)'HUTU
700 COLOR 1,3:CHAR,1,21,L$+"[SPACE2,
   SHFT R]ED :[SPACE3]",X
   :CHAR,8,21,STR$(RN(Ø)),X'FFVN
710 COLOR 1,7:CHAR,1,22,L$+"[SPACE2,
   SHFT B]LUE:[SPACE3]",TM
   :CHAR,8,22,STR$(RN(1)),TM'FHOP
730 COLOR 1,1:CHAR,31,2Ø,L$+"[SHFT B]
   ALLS:"+STR$(BA)'FRXN
740 COLOR 1,2:CHAR,29,21,L$+"[SHFT S]
```

```
     TRIKES:"+STR$(SK)'FRNP
750  COLOR 1,1:CHAR,32,22,L$+"[SHFT O]
     UTS:"+STR$(OU)'FRXP
760  RETURN'BAQH
780  FOR T=1 TO TB:PRINT"[BELL]"
     :FOR I=3 TO 1 STEP-1'JKPR
790  IF W AND I>1 THEN IF RSPRITE(I-1,
     Ø)=Ø THEN 81Ø'JOGS
8ØØ  IF RSPRITE(I,Ø)THEN SPRITE I,Ø
     :SPRITE I+1,1,SH(TM)
     :IF I=3 THEN RN(TM)=RN(TM)+1
     :IF TM AND IN=EX AND
     RN(1)>RN(Ø)THEN OU=4'SJGD
81Ø  NEXT'BAED
82Ø  IF T=1 THEN SPRITE 1,1,SH(TM)'ENFJ
83Ø  IF TB>1 THEN FOR I=1 TO 3ØØ
     :NEXT'HJXL
84Ø  NEXT:TB=Ø:W=Ø:SPRITE 4,Ø'EMRL
85Ø  SK=Ø:BA=Ø:GOTO 68Ø'DLCL
87Ø  GET A$:IF A$=" "THEN LR=XOR(LR,2)
     :SPRSAV S$(2+LR),5:MOVSPR 5,
     172+LR*4,+Ø'MMPA
88Ø  IF JOY(J(JP))<127 THEN 87Ø'ENOP
89Ø  P=JOY(J(JP))AND 127
     :R=INT(RND(1)*1Ø)+6:A=R*2+19Ø+P(P)
     :X=J(TM)AND 1'OPTE
9ØØ  MOVSPR 8,186,188:SPRITE 8,1,2'CRGI
91Ø  IF JOY(J(JP))>127 THEN 91Ø'ENHJ
92Ø  TB=Ø:BU=BUMP(1):BU=1'EOCL
93Ø  Y=S(P)+F(JP):IF P=1 THEN
     F(JP)=F(JP)+.Ø75'HCBR
94Ø  POKE 254,186:SYS DEC("ØCØØ"),A,X,
     Y'DQRN
96Ø  RREG Y,X'BECK
97Ø  Z=X:IF X>V6 THEN X=V7-X:Z=-X'INVT
98Ø  IF Y>VA THEN GOSUB 124Ø
     :GOTO 112Ø'FMXQ
99Ø  SPRSAV S$(V8+LR),V9'CMIQ
1ØØØ R=RND(1)*6:MV%=VC+R+Z*VE+Y*V1'JS
     LD
1Ø1Ø IF LR THEN MV%=VD-MV%'EKLY
1Ø2Ø MOVSPR V1,MV%#3:F=Ø'CMEY
1Ø3Ø IF MV%<3Ø4 THEN MV%=295:F=1'FPRC
1Ø4Ø IF MV%>416 THEN MV%=425:F=1'FPOD
1Ø5Ø IF F THEN MOVSPR 8,MV%#4:SLEEP 1
     :X=1:GOSUB 124Ø:GOTO 112Ø'HACH
1Ø6Ø FOR T=1 TO R*15Ø:NEXT'FHVD
1Ø7Ø DO:X=RSPPOS(V1,.)-V2
     :Y=RSPPOS(V1,V3)-V4
     :LOCATE X,Y'ICLM
1Ø8Ø IF BUMP(1)AND V5 THEN BU=Ø:C=17
     :FOR I=1 TO 2ØØ:NEXT:EXIT'LVGM
1Ø9Ø LOOP UNTIL RDOT(2)=1'EEEG
11ØØ IF BU THEN C=PEEK(SC+INT(X/8)
     +INT(Y/8)*4Ø)AND 24Ø'MUAG
111Ø IF BK(C)=Ø THEN 1Ø7Ø'DKCX
112Ø MOVSPR 8,Ø#Ø:SPRITE 8,Ø'CLOY
113Ø ON BK(C) GOSUB 117Ø,121Ø,12ØØ,
     119Ø,118Ø'CELD
114Ø SPRSAV S$(2+LR),5'CKHB
115Ø RETURN'BAQY
117Ø SOUND 3,43ØØ,3Ø,1,,122,1:OU=OU+1
     :SK=Ø:BA=Ø:RETURN'GIBM
118Ø TB=TB+1:SOUND 3,8ØØØ,15Ø,2,65ØØ,
     2ØØ,1 'DEMK
119Ø TB=TB+1'CFJF
12ØØ TB=TB+1'CFJW
121Ø TB=TB+1'CFJX
122Ø RETURN'BAQW
124Ø IF X<5 THEN SK=SK+1
     :SB$="[SHFT S]TRIKE":C=2
     :ELSE BA=BA+1:SB$=" [SHFT B]ALL"
     :C=1'MCER
125Ø COLOR 1,C:CHAR,17,2Ø,L$+SB$
     :FOR I=1 TO 3ØØ:NEXT
     :CHAR,17,2Ø,"[SPACE6]"'IGUM
126Ø C=1:IF SK>2 THEN SK=Ø:C=Ø'GMQH
127Ø IF BA>3 THEN BA=Ø:C=112:W=1'GOCJ
128Ø RETURN'BAQD
13ØØ DATA 1,3,22,18,OUT, 68,52,7,6,
      162,35,19,4, 258,6Ø,31,7'BWLF
131Ø DATA 8,4,12,9,1B, 65,91,7,11,
      262,91,32,11, 13Ø,75,15,9, 198,
      75,24,9'BJRI
132Ø DATA 5,2,14,11,3B, 19,78,2,9,31Ø,
      14Ø, 297,86,36,1Ø,21Ø,54'BAPI
133Ø DATA 1,4,7,5,O, 99,123,12,15,
      131,99,16,12, 195,99,24,12, 22Ø,
      123,27,15'BMKL
134Ø DATA 1Ø,1,16,13,-, 164,139,2Ø,
      17'BBKF
136Ø DATA ØØ,Ø7,8Ø,ØØ,7F,EØ,ØØ,FB'BXGH
137Ø DATA 78,Ø1,FF,DC,Ø1,Ø5,EE,Ø3'BXBI
138Ø DATA DE,FE,Ø3,DF,FE,Ø3,FF,F8'BXAJ
139Ø DATA Ø1,24,EØ,ØF,FF,ØØ,3F,FC'BXLK
14ØØ DATA ØØ,FF,FØ,XX'BLZA
142Ø DATA ØØ,ØØ,ØØ,ØØ,ØØ,ØØ,ØØ,ØØ'BXHD
143Ø DATA ØØ,ØØ,ØØ,ØØ,3C,ØØ,ØØ,42'BXKE
144Ø DATA ØØ,ØØ,5A,ØØ,ØØ,42,ØØ,ØØ'BXKF
145Ø DATA 3C,ØØ,ØØ,ØF,ØØ,ØØ,1F,8Ø'BXCH
146Ø DATA ØØ,1B,8Ø,ØØ,ØF,CØ,ØØ,ØE'BXQI
147Ø DATA CØ,ØØ,Ø7,EØ,ØØ,Ø3,EØ,ØØ'BXDI
148Ø DATA Ø3,7Ø,ØØ,Ø1,FØ,ØØ,ØØ,D8'BXSJ
149Ø DATA ØØ,ØØ,78,ØØ,ØØ,38,ØØ,ØØ'BXIK
151Ø DATA ØØ,ØØ,FC,ØØ,Ø7,EE,ØØ,1F'BXOE
152Ø DATA BC,ØØ,7F,FØ,ØØ,F7,CØ,1F'BXKF
153Ø DATA DF,ØØ,21,FC,ØØ,2D,7Ø,ØØ'BXQG
154Ø DATA 21,ØØ,ØØ,1E,XX'BOXF
156Ø DATA 1F,CØ,ØØ,7F,EØ,ØØ,DF,FØ'BXHJ
157Ø DATA ØØ,BF,FØ,ØØ,BF,FØ,ØØ,EF'BXSK
158Ø DATA F8,ØØ,5F,F8,ØØ,5F,F8,ØØ'BXUL
159Ø DATA 37,FC,ØØ,2F,FC,ØØ,2F,FE'BXJM
16ØØ DATA ØØ,1B,FE,ØØ,16,FF,ØØ,15'BXUE
161Ø DATA FF,ØØ,ØF,Ø3,8Ø,ØE,8Ø,CØ'BXBF
162Ø DATA ØD,4Ø,4Ø,Ø4,8Ø,4Ø,Ø6,4Ø'BXLF
163Ø DATA 4Ø,Ø3,21,8Ø,Ø1,FF,ØØ,FF'BXIH
165Ø DATA 6Ø,ØØ,ØØ,FØ,ØØ,ØØ,FØ,ØØ'BXHI
166Ø DATA ØØ,6Ø,XX'BIFH
168Ø DATA 85,FB,84,FC,86,FD,A6,FD'BXDM
169Ø DATA BD,ØØ,DC,29,1Ø,FØ,38,EE'BXPN
17ØØ DATA E5,11,FØ,33,AD,E5,11,C9'BXAF
171Ø DATA EB,DØ,Ø5,AD,E4,11,85,FE'BXKG
172Ø DATA A4,FC,A2,ØØ,CA,DØ,FD,88'BXVH
173Ø DATA DØ,F8,AD,E5,11,C5,FB,9Ø'BXOI
174Ø DATA D5,29,Ø3,DØ,D1,A5,FB,29'BXEJ
175Ø DATA Ø1,DØ,Ø6,CE,E4,11,4C,Ø6'BXYK
176Ø DATA ØC,EE,E4,11,4C,Ø6,ØC,A5'BXJL
177Ø DATA FE,38,E9,BA,AA,AD,E5,11'BXTM
178Ø DATA 38,E9,EØ,C9,16,BØ,Ø3,AØ'BXLN
179Ø DATA ØØ,6Ø,AØ,B4,6Ø'BOTM
```

END

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GLITCH FIX

Bikegear

Oops! Last month our listing program ate some control characters in Bikegear by John Lunde. All you need to do to fix things up is:

1. Type in the lines below substituting CONTROL/P for any occurrence of an ampersand (&).
2. Substitute CONTROL/O for the "@" in line 570.
3. Delete line 580 from your original listing.

Sorry for any inconvenience folks!

```
545 PRINT" "B$(X+1)"&Ø4[SHFT -]
    "C$(X)"&1Ø[SHFT -]";
55Ø PRINT A(X)"&18[SHFT -]"B(X);
    :T=274/ABS(Q-V)
555 IF S<F THEN PRINT"&26"C(X)"&32
    [SHFT -]";
57Ø PRINT CHR$(156);:NEXT:PRINT"@"
    :NEXT
575 IF A<2Ø THEN FOR X=A+2 TO 21
    :PRINT" "B$(X);:PRINT"&Ø4[SHFT -]
    &1Ø[SHFT -]&18[SHFT -]&32[SHFT -]"
    :NEXT
585 PRINT U$:T$="":R=1:GOTO 7Ø5
665 IF(C-Z<=1)THEN T$=T$+"*&&&&&&&&"
    :GOTO 68Ø
795 DATA"&&&","[CMDR H]&&&","[CMDR K]
    &&&","[RVS,CMDR N,RVOFF]&","[RVS]
     [RVOFF]&"
8ØØ DATA"[RVS] [RVOFF]&","[RVS,CMDR H,
    RVOFF]&","[CMDR L]&&&","[CMDR N]
    &&&"," &&&"
```

END

Projects/Sound Digitizer II

Continued from page 54

```
28Ø DATA 16Ø,ØØ8,169,ØØØ,141,ØØ1,221,
     169,ØØ1,141'BOPL
29Ø DATA ØØ1,221,136,192,ØØØ,2Ø8,241,
     173,Ø13,221'BOOM
3ØØ DATA 173,Ø12,221,16Ø,ØØ2,14Ø,ØØ1,
     221,Ø96,162'BOME
31Ø DATA Ø36,2Ø2,2Ø8,253,Ø96,16Ø,Ø36,
     136,2Ø8,253'BONG
32Ø DATA Ø76,188,Ø19,ØØØ,255'BTED
```

END

128 1.0

```
 1 REM *****  SAVE THIS PROGRAM AS
   "128 1.Ø" ******'BDQH
 2 REM BASIC CONTROL DIGITAL RECORDER
   AND PLAYBACK'BNCL
 4 POKE 56579,255:POKE 253,Ø
   :POKE 254,66:POKE 512Ø,Ø
   :POKE 5121,16'FMQM
 6 BANK 15:   PRINT TAB(7)"[CLEAR,
   DOWN7]MAIN MENU:"'DGEL
 8 PRINT:PRINT TAB(7) "DIGITAL
   RECORDER AND PLAYER"'DDSP
1Ø PRINT:PRINT"1) LOAD ML PROG[SPACE5]
   7) SAVE SOUND SAMPLE"'CBOI
12 PRINT"2) RECORD[SPACE11]
   8) CHANGE PITCH"'BAHH
14 PRINT"3) PLAYBACK[SPACE9]
   9) DIRECTORY"'BAYI
16 PRINT"4) FAST[SPACE13]
   1Ø) QUIT"'BAVI
18 PRINT"5) SLOW"'BAWH
2Ø PRINT"6) LOAD SOUND SAMPLE"'BALD
22 PRINT:PRINT TAB(2)"ENTER NUMBER
   1-1Ø THEN PRESS RETURN"
   :INPUT J'EFKM
24 ON J GOTO 26,28,3Ø,34,36,4Ø,5Ø,68,
   8Ø,38'CFEI
26 PRINT"[CLEAR]":PRINT TAB(21)"[DOWN]
   LOADING":LOAD"SID 1.Ø",8
   :GOTO 6'FJEN
28 PRINT"[CLEAR]":PRINT TAB(12)"[DOWN]
   RECORDING":SYS 4864:GOTO 6'FLPO
3Ø PRINT"[CLEAR]":PRINT TAB(12)"[DOWN]
   PLAYBACK":SYS 4941:PRINT"[CLEAR,
   DOWN3]RETURNING TO MENU"'FKIM
32 FOR T=1 TO 15Ø:NEXT:POKE 212,88
   :POKE 2Ø8,Ø:GOTO 6'HVLJ
34 FAST:GOTO 6'CDCF
36 SLOW:GOTO 6'CDDH
38 PRINT"[CLEAR]":END'CBFI
4Ø PRINT"[CLEAR]"'BATB
42 PRINT:PRINT"DO NOT ADD PREFIX SND.
   TO FILENAME"'CBOM
44 PRINT"PROGRAM WILL ADD PREFIX
   AUTOMATICALLY"'BAYO
46 PRINT"ENTER NAME OF SOUND SAMPLE :"
   :INPUT A$'CDTP
48 PRINT"[CLEAR,DOWN4]LOADING..SND."A$
   :LOAD "SND."+A$,8,1:GOTO 6'ELCR
5Ø PRINT"[CLEAR,DOWN3]INFO ON SAVING
   OF SOUND SAMPLE"'BAMK
52 PRINT:PRINT"WHEN SAVING SOUND
   SAMPLE PROGRAM WILL"'CBRO
54 PRINT"END. TO RESTART ENTER RUN
   AND RETURN"'BAFP
56 PRINT"YOUR SOUND WILL BE SAVED TO
   THE DISK."'BAAR
58 PRINT"[DOWN3]ENTER NAME OF SOUND
   SAMPLE"'BAYQ
6Ø INPUT B$'BCJC
62 A$="BSAVE"+CHR$(34)+"SND."+B$+CHR$
   (34)+",DØ,P16896TOP62464"'IMRS
64 BANK Ø:PRINT"[CLEAR]"A$'CFBI
66 POKE 842,19:POKE 843,13:POKE 2Ø8,2
   :END'EUCO
68 PRINT"[CLEAR,DOWN4]DEFAULT SETTING
   IS 38":G=PEEK(5Ø19)'DIIU
7Ø PRINT:PRINT"CURRENT SETTING IS ";
   G'CDIK
72 PRINT:PRINT:PRINT"A SMALLER NUMBER
   WILL INCREASE PITCH"'DCSR
74 PRINT"A LARGER NUMBER WILL
   DECREASE PITCH"'BAKR
76 PRINT:PRINT:INPUT"ENTER A NUMBER";
   A'DEWP
78 POKE 5Ø19,A:POKE 5154,A:POKE 516Ø,A
   :GOTO 6'EWBR
8Ø PRINT"[CLEAR,DOWN4]DIRECTORY WILL
   LIST SOUND SAMPLES ONLY"'BAIQ
82 PRINT:PRINT:DIRECTORY "SND.*"'DCNJ
84 PRINT:PRINT"PRESS ANY KEY TO
   RETURN TO MENU"'CBDR
86 GET KEY K$ :GOTO 6'DECN
```

END

Continued from page 22

system (but I don't) is that you have to do a lot of careful mapping. However, this is the easiest type of mapping because all areas are symmetrical and made up of a number of squares. Mapping *Might and Magic* is like drawing a maze. To aid you in perfecting your map-making skills, there is a pad of mapping sheets that contain dots that allow connecting lines to form up to a 16 × 16 array of squares. Also on the pad is room to mark down the key to your map, the area the map represents and any notes that are necessary about the map. You will use this pad throughout the game. *Might and Magic* is the first RPG I have seen that includes tools like the pad to make your job of questing easier. To offer further guidelines, the manual includes a page with a sample map of Sorpigal to study. Symmetrical geography encourages you to forget about the task of drawing a map and think more about playing the game.

Might and Magic comes on two double-sided disks and will grab you into the game immediately. Whoever put together the commands and player characteristics for the game obviously spent time weighing the best from all other RPGs. You may have up to six characters in your questing party (any less is suicide), and these characters have many properties that affect the game play. Statistics for each character take values between three and 18 and are: intellect, might, personality, endurance, speed, accuracy and luck. These statistics don't follow the bulk of most other RPGs and cover all aspects of a prospective character. You can use any of six characters included on the disk or create your own, selecting sets of values for the statistics that appear randomly whenever you hit the RETURN key on the Create New Characters screen.

Creating a character is very easy and, in addition to accepting one of the random assortment of statistic values, involves making a number of choices. A character can be in any of seven classes: knight, paladin, archer, cleric, sorcerer or robber. It's a good idea to use six of the seven classes for your party. Characters can be humans, elves, dwarfs, gnomes or half-orcs. Each has special properties. Character alignment (good, neutral or evil), sex and name are the remaining elements of a character's development. Then all you have to do is put together a party and start playing.

As in any good RPG, there are a number of options from which you can select an action. There are three situations in which you must make choices: during normal exploration (which comprises half of your time), encountering danger (which precedes combat) and during combat. Normal travel offers the standard RPG actions (rest, protect, view character, search, etc.). Encountering danger lets you attack, bribe, retreat or surrender. Success in any choice depends on which side (your party or the enemy) is surprised by the encounter. Failure leads to combat.

Combat is very easy to go through and contains at most eight possibilities for action. Turns take place according to which character or monster has the highest speed and hasn't acted yet. As monsters die, the remaining ones move up an alphabetical list of monsters involved in the combat. A neat feature is to repeatedly attack the monster in the "A" position by holding the CTRL key and "A" key. Each member of your party will attack that monster when it is his/her turn and combat is over rather quickly. In any case, combat is very easily executed, as are all the commands in *Might and Magic*. Remember to search an area after a battle—you often find treasure and useful items.

An important part of *Might and Magic* is the "Magic" half of the title. The "Might" half is combat—the other is casting spells. Only clerics and sorcerers may cast spells and (as in most other RPGs) clerical spells deal more with priestly/medical functions than the offensive and destructive spells of the sorcerers. There are 94 spells available in *Might and Magic* (47 for each class), divided into seven spell levels. Casters may cast spells up to the spell level they are rated for (which increases with experience level). Each requires spell points and perhaps a gem for success.

To add to the number of spells and large geography in *Might and Magic*, there are over 250 magical items and over 200 monsters. These numbers are not meant to intimidate the prospective player, but to show the variety and scope of *Might and Magic*. I have personally only seen a small segment of the game and only run across about 50 monsters. Such immense diversity in objects and characters keeps you from being bored with the game too quickly. In the case of *Might and Magic*, the great diversity in the game makes addicts of its players.

The graphics in *Might and Magic* are a 3D perspective of the square you currently occupy. There is some disk access time when moving between areas on the large map, but this time is negligible. Generally, the graphics appear quickly and have great clarity and colorful depictions of the sights your party is seeing. The sound effects in *Might and Magic* are also good. I tend to wonder whether more sound is better for an RPG or adventure game in that it builds tension and adds flavor. *Might and Magic* has made me vote for sound as an element that should be included in more RPGs.

At first glance, I thought that *Might and Magic* was going to be a great game. I was absolutely correct! The manual is well-written and beautifully illustrated, including very specific descriptions of the options and spells and a spell table on the back that contains necessary information. The map and grid pad are an extra nice touch that both help to play the game. If you get really stuck, you can get a hint book from New World Computing that is almost as long as the manual. I regret that there is not nearly enough time in my days to finish *Might and Magic*, but I know from those who have that the ending is truly wonderful. *Might and Magic Book 1: Secret of the Inner Sanctum* will keep both the novice and veteran alike occupied with its challenging goal, easy-to-use game system and exciting graphics. ■

Cinemaware: Interactive Excellence

Continued from page 69

How does Cinemaware continue to maintain and improve upon its high level of software sophistication? Jacob ascribes this to the fact that "with each game, we've become smarter at what we're doing. This makes the execution of the design of the game go smoother, and the final result is a lot cleaner. Everything we learn on each game does not go to waste, but rather is added to the fountain of knowledge available for the next effort."

Jacob has no problem saying, "We believe that *Rocket Ranger* is the best game ever done. That's my belief; you may or may not agree with me."

Nowhere else can this theory of Cinemaware be seen more clearly than in the three newest titles. Each has stretched the limits of the computers they are available for and lived up to the Jacobs' original dream of total interactivity between a game player and a story, with the computer as the tool in between.

Rocket Ranger

Rocket Ranger is the only game of the three latest titles that I actually had the chance to play before I wrote this article. I was told I was the only person at the time outside the company to play this incredible game. All privileges aside, I am firmly committed to the fact that *Rocket Ranger* is the best thing I've seen from Cinemaware and possibly the best interactive game for the Amiga. It's tough to make a claim like that, but Jacob has no problem saying, "We believe that *Rocket Ranger* is the best game ever done. That's my belief; you may or may not agree with me." I don't agree with him simply because I don't believe that any game can be given such a broad title. However, I do share in Jacob's excitement for *Rocket Ranger* and without hesitation would give it the title "Best Interactive Story and Game." However, this accolade would probably only last until another new Cinemaware product comes out.

As *Rocket Ranger* you must battle Nazis for the control of lunarium, a fuel that is mined on the moon. You must first save a scientist and his daughter from the evil foe and stop the Nazi takeover of the world in 1940. In all of this you have the ability to fly, shoot a laser pistol, use a wrist decoder, save a beautiful girl and fight a horrible foe, making *Rocket Ranger,* in Jacob's words, "the first true superhero game. I grew up going to all those Saturday matinees, plunking down my quarter and watching a serial, eight cartoons and The Three Stooges. *Rocket Ranger* is the product of a misspent childhood, I guess." Whatever the origin, there are so many things about *Rocket Ranger* that make it worth your interest.

Designed by Kellyn Beck (who legally changed his name from "Beeck" to "Beck" with this game because people constantly mispronounced his name "beak" instead of "Beck," myself included), *Rocket Ranger* was originally dreamed up by Jacob himself. The game was produced by John Cutter who says he was "more satisfied with *Rocket Ranger* when it was done than any other project I have ever worked on." Tom McWilliams provided the seven arcade sequences, which vary from shooting Nazis in secret hideouts to flying your jet pack through the air, avoiding deadly shots fired from a dirigible. Peter Kaminski did the rest of the programming work for *Rocket Ranger.* The result of the collaboration between these five artists along with music and sound effects creator Bob Lindstrom is simply incredible.

Jacob claims, "*Rocket Ranger* is the biggest project ever tackled by a computer company." This may be substantiated by the great number of advances and features that are contained in the game. There is over 40K of text in the game, yet it is not a text-based game. The version I played was spread out on three disks. Attempts have since been made to scrunch everything down on two disks. All sound and music in the game is completely digitized. Bob Lindstrom, former head of the Games forum on Q-Link and now editor of *A+* magazine, composed 15 original pieces of music for *Rocket Ranger.*

Rocket Ranger "simply has so many twists and turns, permutations of the story and branchpoints that you can't believe it," Jacob reveals. From what I've seen during play, there are many, many possibilities that can be accessed. The game is the first to use QuickDOS, Cinemaware's own operating system for the Amiga that runs three times faster than the normal operating system. *Rocket Ranger* is not copy protected and originally was presented by Kellyn Beck on a design document over 100 pages long. The arcade sequences use the maximum potential of the technology of the Amiga and the other computers. In the fight scene/arcade game on the Commodore 64 version, for example, each character is made up of 16 sprites, so there are 32 sprites moving on the screen at once. These are just some of the examples of *Rocket Ranger's* power. And if that weren't enough, the game is packaged with a decoder wheel that gives you the number of lunarium fuel modules you need to fly your jet pack from place to place—a neat enclosure and copy-protection device.

When I initially loaded *Rocket Ranger,* I followed the Cinemaware guidelines and turned out the lights in my room. What happened next was truly amazing. I was actually drawn mentally into the game with the opening sequences and eerie music that starts off the "show." After seeing Hitler and Nazis in the introduction screens, you are quickly shown the origin of Rocket Ranger/Tom Cody and the game begins. The introduction can be skipped if you want, but I strongly suggest you do what I did the first time you play. The rest of my experience with *Rocket Ranger* was very enjoyable. I couldn't have asked for a better reason to leave work early and stay up late.

The graphics are simply too good to be believed. I wondered at first whether they were all digitized, but realized that what I was seeing was the dedicated work of some very talented artists. Indeed, the credits that roll at the beginning of the game show a lot of people. Cudos to all of them, especially the artists who brought the story to life before my eyes! In addition to the sights, the sounds are just as impressive. Lindstrom composed music that's flawless in capturing the feeling of the game situation at the time. Having your two most important senses treated so well in a game is unusual, but well-appreciated.

Jacob told me, "Spiritually, *Lords of the Rising Sun* is the great-grandson of *Defender of the Crown.*"

Game play in *Rocket Ranger* is very interesting indeed. Between monitoring Nazi activities on Earth, battling them on the moon and fighting them on the ground and in the air, *Rocket Ranger* requires strategy as well as adeptness with a joystick. I found the arcade sequences exciting and perfectly suited to the story line at the time they pop up. The toughest

part for me was learning to get *Rocket Ranger* off the ground and into the air by running on the ground, but I quickly mastered this activity. Graphics, sound, action, strategy, cleverness and a solid story are all part of *Rocket Ranger,* and I can already see that the game will be a success. Hats (or should I say helmets?) off to the people at Cinemaware for a job well done! Those five man-years of development time paid off.

Lords of the Rising Sun

Lords of the Rising Sun takes an entirely different approach than *Rocket Ranger.* In *Lords,* your father, leader of the Minamoto clan, dies, and you must take over for him as the man at the forefront of the Minamoto rebellion against the Taira clan. You have to either work with or against your brother in this goal to become the Shogun of Japan. Cutter revealed that in *Lords,* "through combat and negotiation of alliances, you try to unite your forces and become Shogun." A preview videotape I saw of footage of *Lords of the Rising Sun* states, "Japan needs a general who can command great armies, a warrior with impeccable sword skills, a politician who can win many allies and a man with unblemished honor."

As you can see, *Lords* is aiming to create an atmosphere in which strategy and diplomacy are necessary for success in addition to command of the arcade sequences. In a lot of the descriptions I saw of the game, I saw threads of *Defender of the Crown* sneak through: a lot of the game revolves around capturing castles and lands from the Taira clan. Jacob told me, "Spiritually, *Lords of the Rising Sun* is the great-grandson of *Defender of the Crown.* Comparing the two games is like comparing the Wright brothers' airplane to an F-18." So, although play may be similar in purpose, the arcade sequences, specific situations and general atmosphere separate the two games by miles.

I didn't actually get to play *Lords,* but I did see enough footage of the game and pick up enough facts about it to make a judgement. The programmer, David Todd, took upon himself a lot of work in bringing designer Doug Barnett's creation to the Amiga. Todd wrote the navigation program for the space shuttle and worked no less on *Lords.* He had to manually plot 28,000 X-Y coordinates in addition to programming the game so that the graphics would move in accordance with real time. *Lords* features a three-screen-wide smoothly scrolling map of Japan on which clouds and armies move in real time and waves break on the beach.

In addition to the graphics and Japanese music that permeates the game, the atmosphere is heightened by eight arcade sequences. One involves keeping the enemy from advancing over your castle's walls by picking them off with a crossbow, making sure you don't shoot your own men who are simultaneously fighting them with swords. On the screen, there may be as many as 62 moving objects (the fighters) at once—certainly pushing the computer to its limits. The other sequences feature sword fights on horseback while moving diagonally across the screen and deflecting throwing stars thrown by attacking Samurai guards in castle corridors.

Cinemaware talked to a technical consultant from Japan about the authenticity and excitement of *Lords of the Rising Sun* and received his approval in both areas. The thrust of the game seems to be in its requirement of careful tactics by the player, as well as recognition of the various moving forces on the screen. You have to stay calm during *Lords* and quickly evaluate the situation in which you and your army have been placed to succeed.

> *TV Sports: Football* takes less than an hour to play, yet there are so many ways to play that it's incredible.

Jacob was especially proud of the fact that "there is more animation in *Lords* than has ever been done in any computer game."

From what I've seen of *Lords of the Rising Sun,* I expect it to appeal to war game-oriented players as well as the standard computer game player. I look forward anxiously to seeing *Lords* and can verify that the graphics I've seen (especially the map of Japan and its cloud cover) and the music I heard sets a serious tone that is symbolic of the Japanese culture as well as the dire situation of lack of a Shogun.

TV Sports: Football

What?! *Another* football game! Haven't we had enough sports simulations and football games of all types? The answer will be a resounding "No!" after you see and play *TV Sports: Football,* Cinemaware's first offering in the sports game arena. What separates *TV Sports: Football* from all other football games and sports games in general is its ability to draw you into its atmosphere of a TV broadcast of a football game. The first in a series, *TV Sports: Football* was designed by John Cutter and programmed by Larry Gardner. "We had to come up with something unique," Robert Jacob sums up the project. "We needed something catchy, and I think the TV metaphor is it. It emulates a TV broadcast—announcers, pre-game shows, half-time shows—and is very 'TV-looking' in how we present the game."

What does "TV-looking" mean? While you are playing your game on the screen, all the other teams in the league are playing their games. Scores are flashed from the games in progress every now and then from these other games. In addition, shots of the dancing cheerleaders, pre-game shows and half-time shows add to the atmosphere of the game. The most important element that really hits home is the game announcer. He introduces and signs off each game, gives stats and special situations to watch out for before the game starts and personalizes the game by making judgements about players whom you may have given your own name.

John Cutter remarked, "This is the fun of *TV Sports*—the fantasy element. If you name a character after yourself or after some famous player, the announcer describes your player's deeds and team's past record in relation to the game about to take place, offering tips and strategy for both players to follow." In addition, Cutter takes pride in mentioning, "I don't think anyone's done a game that has had everything—arcade action, stats and graphics. No sports games have supplied all of those things, but *TV Sports: Football* does."

In addition, *TV Sports: Football* has many other features. The game has a 16-team, 28-game schedule, just like in the NFL. Role-playing is involved in that you can create your own players, assemble your own teams and even rename and create the entire league. *TV Sports: Football* takes less than an hour to play, yet there are so many ways to play that it's incredible. You can play league games in which you and a player go at it in a do-or-die situation, or you can play an exhibition game just for fun. You can play practice games in which you only run the offense or only practice kicking extra points and field goals. You can play against the computer in all games, cooperate with another player on the same team against the computer or set up as many of the teams in the league with other guys in the office that allow you to compete against your co-

lows you to just call the plays and let the computer play them out.

In any case, *TV Sports: Football* is an incredible proposition and, if Cinemaware makes a *TV Sports* game for every sport, I can see them cornering the sports game market. In the process of researching the game, Cinemaware tried to get films of the Rams and the Raiders, but weren't able to—an indication of the effort put into *TV Sports: Football*. From the coin toss to the cheering crowd to the 3D view during kickoff, *TV Sports: Football* looked and sounded great in the preview I saw. Cutter said that "we refer to *TV Sports: Football* as the *Leader Board* of football games and want to make it as easy as possible. Football is a more complex game than any we have done before." I strongly believe that *TV Sports: Football* will blow away any other football game, as the pre-release promotion promises—it's "so real, it sweats!"

Cinemaware's Future

Now that we have seen what Cinemaware is capable of in the present, what have we to look forward to in the future? More of the same? I think so, but I also believe that Cinemaware is just happening upon a genre that it created and must bring to fruition. *The King of Chicago* was the first sign of this maturity, and the games and ideas have just been getting better ever since. Jacob sets the immediate goals of Cinemaware as attempts "to push this interactive movie envelope as far as we can. We're really bumping heads with the hardware. The Amiga's a very capable machine, but even that we can't get to do what we ultimately want it to. When CDI (Compact Disk Interactive) is a reality, I think Cinemaware will have a field day with the technology and bring our dream to life with real people, soundtracks and dialogue." For now, what you can get from Cinemaware is nothing to sneeze at. Pick up a game and lose yourself in it.

Cinemaware's dedication to the Commodore 64 and Amiga is incredible. Look for as much as you can get out of either system in the future. This fact is confirmed by Jacob who finds that "programming on the Amiga and forcing it down to the 64 forces you to be creative, and we're having a ball doing it." I would expect that Cinemaware would maximize the operating system for the 64 in the near future (although Jacob made no mention of this possibility) in order to make it work as fast and efficiently as possible.

Immediate plans call for two more sports simulations in the TV Sports series sometime in 1989. Additionally, a horror story will be released in the first quarter of 1989, much to my delight because of my great interest in the horror genre of computer games and the relative avoidance of most software companies of this area. In particular, the future will see Cinemaware trying to make games that appeal more to adults. Jacob states, "I'm 38 years old and want to do games that I would enjoy playing. If that means a little romance or a little risque stuff, I'm all for it. Unless you want the 64 and Amiga to be only used by 12-year-old kids, which is patently absurd, then what's wrong with making a game that appeals to someone with different interests and more adult concerns?"

Fortunately for us, there is someone like Bob Jacob and a company like Cinemaware that can be used as a channel for mature, intelligent games that use the full power that you paid for in your computer. Whatever the direction of future projects, I'm convinced that Cinemaware will be flying as high as *Rocket Ranger* and fighting as hard for variety as a knight in shining armor or Sinbad the sailor. C

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will change the appearance even more.
Robert J. Tiess
Middletown, NY

```
100 REM REPEATEDLY CALLS THE
    SUBROUTINE
110 L=80:S=8:DO:GOSUB 10020:LOOP
10000 REM 128 SCREEN EXPLOSIONS -
      TIESS
10010 REM SET L AND S BEFORE CALLING
10020 COLOR 4,1:COLOR 0,1:COLOR 1,3
10030 COLOR 2,10:COLOR 3,8
10040 GRAPHIC 3,1:LOCATE 80,100
10050 FOR A=0 TO 360 STEP S
10060 WIDTH INT(RND(0)*2)+1
10070 C=INT(RND(0)*3)+1
10080 DRAW C,RDOT(0),RDOT(1) TO 80,100
10090 LOCATE +INT(RND(0)*L);A
10100 NEXT
10110 RETURN
```

128 Easy Word Processor: Here's a way to print out simple letters or notes on your printer without loading your 128 word processor. First, type AUTO 10 RETURN to enable the 128's automatic line-numbering feature. Then type your letter just as you would a program, starting with line number 10. (The AUTO feature will automatically number the subsequent lines).

When you've finished typing, execute these commands in direct mode:

OPEN 4,4:POKE 24,37:CMD 4:LIST <RETURN>

You will see your letter being printed without line numbers! When the printing is finished, type this in direct mode:

PRINT#4:CLOSE 4:POKE 24,27

You can then save your writing as a program for further use and modification. The secret to it all is the POKEs to location 24. The first one disables the printing of line numbers, while the second enables them again. When typing your letter, you should use all unshifted letters, and never use the question mark. (That's because the computer will interpret them as BASIC keywords such as PRINT when it's doing the listing.)

The accompanying program will automate the above procedure for you. If you run it before lines 10 and up have been added, it will establish the AUTO mode and start you typing on line 10. When you've finished typing, press RETURN when prompted for the next line number, then run the program again. This time, it will do the printing for you.

(If the program doesn't work as described, execute a PRINT FRE(0) with only lines 1-5 in memory. Add 5 to the number you get, and substitute that number for the 57904 in line 1.)

You can save the entire program, including your typing and lines 1-5, and run it again to repeat the printout. You can add, delete or change your lines of text, just as you would in a "real" program.
Wen-Ho Yang
Asuncion, Paraguay

```
0 REM ** 128 EASY WORD PROCESSOR **
1 IF FRE(0)<57904 THEN 4
2 PRINT"[CLEAR,DOWN3]AUTO10"
  :PRINT"[DOWN2]0 REM ** 128 EASY
```

```
  WORD PROCESSOR **[HOME]"
3 POKE 842,13:POKE 843,13:POKE 208,2
  :END
4 OPEN 4,4:POKE 24,37:CMD 4:LIST 10-
  :PRINT#4:CLOSE 4:POKE 24,27:END
```

128 CP/M Reboot: You don't have to use the reset button or power switch to reboot in the 128's powerful CP/M mode. Just press the CONTROL and ENTER keys at the same time. (Be sure to use the ENTER key on the numeric keypad, and not the RETURN key on the main keyboard.)
Jay D. Locklear
Fayetteville, NC

128 CP/M and Printers: When using CP/M programs with a 1525 or plug-compatible printer, several problems arise. The worst is the destruction of the double quotation mark character; another is that many CP/M programs attempt underlining by overprinting the ASCII underline character, which comes out as text overstruck with back-arrows.

The problem can be fixed if you have a 1571 or 1581 drive and the two extra disks you order from DRI. (The order form is in the 128 System Guide.)

As always, make backup copies of all the disks you will use, and store the originals in a safe place outside your computer room. Also keep a bootable disk with your present CP/M system in case something goes wrong.

When all your backups have been made, copy the files from both sides of the SOURCE disk to a single double-sided disk. Using your word processor or a text editor such as CP/M's ED.COM, modify the file CXPRINTE.ASM as follows:

Find the routine CONVT:, which should be on or around line 76. It should read:

```
?convt:
    ani   7fh
    cpi   cr
    jrz   set$msb
    cpi   “ ”
    jrz   is$quote
    cpi   ”
```

Change it so it reads:

```
?convt:
    ani   7fh
    cpi   cr
    jrz   set$msb
    cpi   '_'
    jrz   is$und
    cpi   ”
```

Note that the underline character (used to replace the double quote in the cpi statement) is on the back-arrow key at the upper left of the keyboard.

Now find the routine IS$QUOTE:, which should be at or around line 110. It should read:

```
is$quote:
    mvi   a,27h ;convert to tick
    ret
```

Change this to read:

```
is$quote:
    mvi   a,0a4h ;convert to CBM underline
    ret
```

Save these changes to disk, then close the file. If your editor makes a backup file, erase it. Now follow the directions in the file MAKESYS.DOC on the SOURCE disk, substituting your new CXPRINTE.ASM file. Find something else to do for a while, since the process (even with two disk drives) takes over a half hour to complete.

Finally, copy the CPM+.SYS file to a new disk, and copy over the CCP.COM file from your current boot disk. Boot from the new disk, and try printing a file.

If all went well, you now not only have the capability to print the double quote, but you can also underline, even with the 1525! Most CP/M word processors, including *WordStar* and *Perfect Writer*, will allow you to underline in this way. Be sure you do keep a copy of your original system, though. Then if a bug shows up later, you can still reboot from the backup system.
James T. Peeples
Texarkana, AR

File Renamer: Although renaming files is easy to do from direct mode, the syntax is difficult to remember. This program automates the task by prompting you for the old and new filenames, then carrying out the complicated stuff itself.
Toby Dodd
Robinson, IL

```
100 PRINT"[CLEAR,RVS,SPACE8]
    FILE RENAMER - TOBY DODD[SPACE8]"
110 INPUT"[DOWN]DO YOU WISH TO RENAME
    A FILE (Y/N)";A$
120 IF A$<>"Y" THEN PRINT "[DOWN]
    I'LL INTERFACE WITH YOU LATER,
     THEN![DOWN2]":END
130 INPUT"[DOWN]OLD FILENAME";OF$
140 INPUT"[DOWN]NEW FILENAME";NF$
```

```
150 OPEN 15,8,15
160 PRINT#15,"R0:"+NF$+"="+OF$
170 CLOSE 15
180 GOTO 110
```

Computer Shake: This little program "shakes" your computer screen for a second or two, then lets it go. It's another example of what can be done with a very few bytes of programming code.
Arbi Sookazian
Herndon, VA

```
10 FOR J=0 TO 255:POKE 53270,J:NEXT
   :POKE 53270,200:REM COMPUTER SHAKE
   - A.SOOKAZIAN
```

Joystick Trickery: Many games in which the action is non-stop require you to press the space bar at certain times, such as when you want to throw a hand grenade. Unfortunately, if you take your hand off the joystick to press the space bar, you are likely to get killed.

I have found the easiest way to press the space bar while maintaining a steady control of the joystick is to use your foot. I lean back in my chair and set my foot up on the computer desk, with my toes poised above the space bar. When I need to throw a grenade, I just press down with my toe. Needless to say, I retain absolute control of my joystick.
David Rees
Bucyrus, OH

Label Your Joysticks: It may be obvious, but lots of people don't do it. If you keep two joysticks plugged into your computer, label them so you can tell which joystick is plugged into which port.

I use a piece of tape on the joystick, marked with the number 1 or 2. Others have used bands of tape on the joystick cables. Try narrow masking tape or adhesive tape, putting one band on joystick 1 and two bands on joystick 2. If you put identical bands on the cables near the plugs, you'll eliminate confusion when you connect and disconnect the joysticks.
Tony Brantner
Munhall, PA

Use the Proper Joystick: Having problems getting high scores in games like *Track and Field* and others that require rapid left and right joystick movement? Maybe the trouble is with your joystick.

Though you'll never see it in the specs, some brands of joystick have a much smaller "turning radius" than others. The ones with a small radius are the best for rapid back and forth movement. The Atari joysticks, unsophisticated as they are, are in this desirable class.
Shane D. Dolha
Regina, Saskatchewan
Canada

Keep Two Ribbons: Since printer ribbons quickly lose their like-new blackness, I always keep two of them on hand. One stays in the printer, and I keep it going until it's dry. The other, a like-new one, stays in my drawer until I need it for a high-quality printing job. I use it for that job only, then return it to the drawer until it's needed again. When the "everyday" ribbon finally runs out of ink, I replace it with the slightly-worn ribbon from my drawer and replace that ribbon with a brand-new one.
Luke A. Babey
Port Washington, NY

Printer Pause: Most of today's printers have an Online/Offline button. When you push it, it stops the printer from printing or advancing paper. Many times this is easier than attempting a pause from your computer keyboard.
Cory Moore
Westlock, Alberta
Canada

Don't Sell Your Printer Short: I use an Okidata 120 NLQ printer and have recently considered upgrading, partially because of the lack of an italics font. While investigating upgrade options, I learned that many printers with italic fonts cannot use them in their NLQ modes.

So for most normal printing, I decided to use my existing printer's NLQ mode in place of printing italics. I just set up my program's printer driver by entering the codes for NLQ-on and NLQ-off when the driver prompted me for the italicizing codes.

This produces surprisingly nice results, and lets me take better advantage of my printer and word processor.

Another feature often forgotten is "elite," or 12 characters per inch (cpi) printing. Many dot matrix printers produce higher quality output at 12 cpi than at the normal 10. When using elite, remember to adjust your margins—left at 12 and right at 84 will produce a six-inch printed line with one-inch margins.
James T. Peeples
Texarkana, AR

Disk Drives and Filetypes: When loading a directory, most people know how to load groups of files by using the asterisk and question mark. You can also selectively load the directory for a single filetype by adding an equal sign and the first letter of the filetype after the pattern. For example, to load the directory of all SEQuential files starting with the letter A, type:

LOAD "$0:A*=S",8

To load the directory of all SEQuential files, type:

LOAD "$0:*=S",8

The principle also works with the 128's DIRECTORY command, and will usually work with whatever other directory-loading system you may have. On the 64 (but not on the 128) you can use the filetype designator to load a SEQ or USR file into memory, just as though it were a program. To put the SEQ file KATHY into the BASIC program area, just execute:

LOAD"KATHY,S",8

Notice that the "S" for the SEQ filetype is inside the quotes, appended to the name of the file.
Jerry Jordak
Middlefield, OH

Finding Fellow Users: For those of you who live in small towns and have no local user groups to fall back on, I suggest running an ad in your local paper. Simply mention the type of computer you own and that you are interested in exchanging ideas and programs (public domain programs and ones you created yourself, of course).

After the ad appears a few times, you're bound to find someone who owns a computer like yours. And who knows . . . maybe you'll start your own user group!
Neal J. Pynenberg
Kaukauna, WI
(Pop. 11,310)

How to Solve an Adventure

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puzzle, why does the parser seem to go out of whack and simply repeat the last word you typed in? If a character is getting in your way or won't cooperate, think about his motivation. Why is he acting this way? What could you do to alter that behavior? When dealing with other characters, consider the "method acting" approach: put yourself in the mind of the character and see the reality of this particular universe through his eyes. This is most important in spy and detective stories, but helpful in many situations.

Finally, there's the "try everything once, then try it again" method. Just because you've tried something that didn't work, don't discount it immediately. Success may hinge on the completion of an apparently unrelated task.

When Hopelessly Brainlocked...

Everyone gets stuck sooner or later. What do you do (after yanking your hair out) when you're up against a stone wall with no clues in sight? Roberta Williams, who writes the *King's Quest* series, offers some advice that applies to all-text games and role-playing games as well as to graphic adventures. "When you're really stuck, first make sure that you've got everything you can possibly get before that point. Then you look at your map and make sure there aren't any places that you've missed, because there could be a couple of directions you didn't try from some location. And in that case, there could be something there to help you.

"If it seems that you've gone every place you can possibly go and gotten everything you can possibly get," Williams suggests, "then you might look in your inventory. Sometimes you forget what you have. Examine your objects and literally look at them. Say 'look at the bottle,' because maybe you didn't do that. And then in the area that you're stuck at, take a good look at the picture or read the description carefully and look for little details you may have missed. Then look at your objects as if you've never seen them before as to what you could possibly do with them."

Ultimately, solving an adventure is like trying to debug a program. You spend weeks tracking down those little bits of information that are out of place and restoring them, so the program, whose ultimate object is for you to reach the concluding scene, will run properly. The difference is that with a program, you've got something you can use—after you solve an adventure, it's time to get a new one! ■

Amiga Software Reviews/Empire

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The computer makes a formidable enemy. At the beginning of each game, you have the option of deciding how smart you want it to be and setting the combat and production efficiencies of all the players. As you encroach on its territory, it has a nasty habit of sending wave after wave of aircraft and army units at you. It also has the propensity to head straight for your transports. An inland enemy city producing army units is particularly difficult to capture, because you don't have the opportunity to sail a transport with six armies right up to it. On some islands, you may end up continually capturing, losing and recapturing cities with great loss of units on both sides. The object, though, is extremely simple—eliminate the enemy and capture all of its cities.

The 70-page manual is extremely thorough and makes the game appear far more complicated than it really is. A significant portion deals with strategy and tips which are quite helpful. The program is not copy-protected and can easily be transferred to a hard drive. Once loaded, there is no further disk access (except to save a game in progress), and there is a few-second delay at most when the computer is thinking. While you cannot play the game over a modem, you can play with up to two other human or computer players. In fact, playing against two computer opponents makes for an interesting game as the two enemies may eliminate each other before you reach them—or they may just team up against you!

Empire comes complete with 13 pre-programmed imaginary world maps, three of which are labeled "Weird" (which they are) and as previously mentioned, several maps of actual geographical areas on Earth. In addition, the program also includes a map maker which allows you to create an unlimited number of additional maps. You can either let the computer generate one for you (in just a few minutes), or you can start from scratch and design your own with relative ease, placing land masses and cities where you wish with few limitations. Designing your own, however, takes the fun and surprise out of exploring an unknown world.

Version 2.04 played flawlessly, and well it should since *Empire* has been around for 12 years having been developed for mainframe computers. The graphics are not outstanding but then again, there is only so much you can do with a war game map. Throughout the game, the program continuously plays digitized sounds which may be turned off for peace of mind. While you can play the game using the pull-down menus, I found entering the commands with keystrokes to be faster and easier in most cases. The only problem with *Empire* (and this applies to all multi-screen simulations of this type) is that it is often difficult to know exactly where you are. Interstel could have included an option on the overall world view to enable you to quickly display a designated 20×36 section. Also while you do have the option of deciding in which order to move your units, the computer will normally do this automatically in an annoying screen-hopping fashion. Battles are also fought at random locations rather than screen area by screen area.

Avid war gamers might not be satisfied with the simplicity of *Empire*, but this lack of absolute reality and detail is what makes *Empire* most appealing to the rest of us. *Empire* is really a game of strategy and logic. You can't conquer the world and defeat the enemy without extensive goal planning and logistical considerations. Games may take hours, even days. I found *Empire* to be totally engrossing, mentally challenging and rewarding, and it has provided me with hours of entertainment and enjoyment. ■

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Database Management

If you are looking for an easy-to-master database, you should consider either *Tisar 128* or *geoFile 128*. The first is turnkey-ready and is perfect for small business operators who need invoicing and inventory control. *GeoFile 128* requires you to set up your own records, but its intuitive design makes it perfect for those of us who need to get the job done in a hurry and don't require complex interaction between records.

Superbase 128, Data Manager 128 and *Pocket Filer 2* are three good choices for those who need advanced data management control. *Superbase 128* would be the pick of those who need a professional-quality product and are willing to spend a little time mastering all its controls. It is programmable, which means you can get the program to perform any filing chore you want with a minimum of keystrokes—once you program it. All three are menu driven.

Each of the data managing programs has its strengths which make it more suitable for specific chores. If you must manage a fairly large amount of data, reach for *Superbase 128*. If you need an easy-to-handle database but still need to search and sort using fairly complex formulas, consider *Data Manager 128* or *Pocket Filer 2*. If you are concerned with inventory but don't know beans about databases, chances are you want *Tisar*, and the rest of us should be able to get along fine with *geoFile 128*.

Telecommunications

Once you are bitten by the telecommunications bug (and sooner or later, we all are) you may decide you want to try your hand at operating your own bulletin board system. *Protolinc BBS* is a modestly-priced message board which lets you serve up to 1500 users and handles most protocols and supports all 100% Hayes-compatible modems.

If you prefer to be on the calling end of the modem, you'll need a terminal program like *Prototerm 128* or *Bobsterm Pro 128*. The first will get you in the game with very few dollars invested, and the second will keep you in the game with style and professional options. The occasional user should consider *Prototerm 128*, while the power user will probably be happier with *Bobsterm Pro 128* (considered by many to be the best terminal program ever written—and for good reason).

But if I were a first-time telecommunication user, I would check my local user group's public domain library first. Some very good PD terminals for the 128 have been developed in the past two years that will let you see just what you want from a terminal before laying your money down.

Finance

Next to making money, holding on to and investing what cash we have is the best way to insure our future. But hiring a professional accountant or retaining a financial advisor is, for most of us, beyond the scope of our resources. The healthy crop of financial aides marketed for the 128 make it possible for all of us (providing we'll invest the time) to master our own financial future. One of the most impressive money managing programs available on any system is called *Sylvia Porter's Personal Finance 128*. It allows you to manually or automatically update your portfolio and helps you track your retirement investments as well as plan your investment strategy.

Softsync offers two accountant programs: *Accountant, Inc.* (for business use) and *Personal Accountant* (for the individual). Both use double-entry bookkeeping, flag deductions, generate profit/loss statements, calculate loans, etc., and illustrate their data using graphic bars and pies.

For the small business owner, *The Accountant* is an integrated accounting/management system which includes all the financial tools used in a business including general ledger, payroll, accounts receivable and payable. Both *Securities Analyst 128* and *TAS (Technical Analysis System)* are targeted for the serious stock market investor. They both use charts to help you determine when to buy or sell securities.

Desktop Publishing

The first entry into the desktop publishing arena for the 128 is Patech's *Page Builder* and *Page Illustrator*. The first allows you to lay out full-page documents including mixed fonts and graphics, while the second program lets you create those graphics. Both have the look of the Amiga's Workbench, work best with a mouse and support most dot matrix printers.

Computer Aided Design (CAD)

Home Designer 128 is a two-dimensional CAD program which lets the user create, store and print blueprint-type drawings. The program includes commands for automatically creating circles, boxes, text-strings and most tasks a working draftsman would be required to use to make a finished blueprint. *CAD Pak 128* is similar but does not support as high a quality printout resolution. Both let you input your drawings in either decimal or feet/inch measurements.

GEOS 128—A Winning System

If I could own only one 128 software package, GEOS 128 would be the one. The 128 version of Berkeley Softworks' GEOS was long in coming, but worth the wait. Presently the series includes the main operating system, GEOS 128 (complete with the standard deskTop, word processor and graphic editor), plus *geoFile 128, geoCalc 128* and *geoWrite Workshop 128*. By the time you read this, those should be joined by a spell checker for GEOS text files and a programmer's tool (for developing software which will operate inside the graphic environment operating system). I've always been a fan of GEOS' intuitive design, sensible icon selection scheme and those hassle-free pull-down menus. The GEOS family of software is pleasant to operate, lightning fast (if a 1750 RAM expansion is installed) and have all the power and options (they make a Macintosh look like a financial embarrassment) any individual could want.

Nuts And Bolts Of Computing

If you are a serious BASIC programmer, you'll love the helpful features *Gnome Kit* employs. My favorite is the FIND command which automatically searches and flags specific variables or strings. It uses an improved HELP routine (for debugging) which not only lists the problem line, but lets you correct it without having to list it a second time (as BASIC 7.0 requires). It also has a machine language monitor and disk editor. I refuse to program without it.

If you are using either the 1700 or 1750 RAM expansion module, *RAMDOS* (RAM expanded DOS) provides an easy way to employ that extra memory with the least effort on your part.

Compilers

Anyone who programs with BASIC very long eventually needs a BASIC compiler to speed up their programs. There are others around, but the two I have used are *BASIC Compiler 128* and *Gnome Speed*. Both work, but of the two, *BASIC Compiler 128* handles more BASIC commands and improved my programs' operating speed the most.

Languages

If you are fluent in any programming

language, chances are there is a 128 version of it just waiting for you to tap. I was impressed with the variety of languages available including C, Pascal and Cobol.

Today one of the most popular development languages on any system is C (because of its speed and portability). Spinnaker's version, *Power C,* is not only affordable but powerful. It includes a shell program manager, editor, syntax-checking editor, compiler and linker and will work with either a 40- or 80-column display.

For us traditional BASIC lovers, *BASIC 8* not only makes programming easier (if you fell in love with the 128's onboard BASIC 7.0, get ready to fall in love all over again), but supplies some power I thought I would have to learn machine language to get—including 80-column bit-map graphics. But best of all, programs created with and compiled by *BASIC 8* can be run on any 128 system. And if you create any programs which you feel are of commercial quality (perhaps some of that missing entertainment software mentioned earlier) you can market them without having to pay Patech a single cent in royalties (which is required by most companies which sell languages or compilers).

If you are really serious about power programming your 128, you'll eventually want to try the waters of assembly language. For that you might want to consider the *C128 Developer's Package* from Commodore which has everything you'll need to master your 128's 6502, both the 1571 and 1581 (using burst mode) sprites, RAM expansion code and the 1351 mouse.

Chip Support

One of the most exciting developments I've seen for the 128 is chipware. Many developers are creating serious custom cartridges and ROM chips for the 128. I suppose the leading example of this support is Commodore's own 1750 RAM expansion unit (REU). When this unit is installed via the game port, it brings the system up to a very professional 640K. And just as importantly, many of the software developers are now programming with the unit in mind. A good example is Berkeley Softworks' GEOS 128 series which supports the 1750 REU. The difference between operating such software (normally heavily disk dependent) on a 640K machine instead of a 128K machine could be compared to flying a jet and walking. Tasks that would normally cause a delay while the disk was accessed run at the speed of light when the REU is used. I suppose to be truthful, when it is installed the 128 (named for its memory size) should be referred to as the 640 instead. This added memory is a programmer's dream come true since the more memory there is, the more creative, detailed, complex, powerful and easy to use the software developed for it can be. (Remember the original Amiga 1000 came with only 256K installed but 95% of the software developed for it requires a minimum of 512K to operate.) At this writing more and more software developers are supporting the REU passively (the expansion is not required, but if you have it the software will take advantage of the RAM). But at least a few products, like Micro Aided Designs' *T.H.I.S.* graphic program, require the 1750. When (if) the unit becomes a standard add-on, the software developed for the 128 should rival that which runs on the Macintosh (remember, the original Mac started with 128K too) and even the Amiga.

One of my favorite RAM-based programs is TimeWorks' *Partner 128* (the 128 version was developed before the 64 version). This cartridge has nearly every accessory a home computer needs including an appointment calendar, calculator, mini-database and word processor, plus direct access to DOS commands. But best of all, each can be instantly accessed with a press of a button—without disturbing the computer's memory. While *Partner 128* doesn't turn the 128 into a multitasking system, it does the next best thing by allowing you to switch between tasks without having to dump and load different programs. The program's one flaw is that it will not work with the REU unit, since the current version requires the same port as the RAM expansion.

MACH 128 is to the 128 user what Epyx's Fast Load cartridge is to the 64 crowd. If a 1571 drive is attached, the cartridge will activate its burst speed. It has a full library of custom DOS commands and will speed up the operation of a 1541 drive as well.

The "COS" in Super Chips COS, stands for Custom Operating System. To install these three chips you need to open your 128 and replace three of the 16K ROM chips. Instantly your computer has a new personality and expanded, improved single-key DOS commands. Programmers will love the FIND and UNNEW commands. The chips support both device 8 and 9 and let you list directories from both side-by-side as well as load and run directly from the listings without having to erase the PRG flags.

Still More

The hassle of moving disk files can be difficult unless you are fluent in your drive's operating system. Free Spirit Software recognized this need and released *Super Disk Utilities* which makes it easy to copy whole disks (or selected files) with one or two drives. The program fully supports the 1571 and includes a track and sector editor. For those who have a 1581 and have been mystified by the drive's command syntax and storage architecture, *Super 81 Utilities* keeps the zip in that super fast drive.

I Am The C-128 is one of those programs which too many people either don't know about or elect to ignore. But in my opinion it should be available to every new 128 owner. The software takes you on a tour of the system and demonstrates how most of its features are activated. It should be packed inside every 128 box.

If you need forms, legal or business, the 128 can supply those too. *Micro Lawyer* is a collection of 100 legal templates which you can load into your word processor, edit to suit your needs and print. *Business Form Shop* also uses templates which you either create or alter from the samples to suit your specific business need. Forms can be up to 100 pages long. The templates created can be operated independently of the parent program.

Matrix is a software bridge between the 128 and 64. It allows you to run many 64 mode programs on the 128 using the 128's 2 MHz speed. It activates the 128's 80-column display as well as the system's numeric keypad and utility keys. *T.H.I.S.* is an impressive graphic design package which requires a 1750 REU. It uses four screens, pull-down menus, includes most professional editing tools and will work with either a 1351 mouse or lightpen. *Colorez 128* is a simple-to-use graphic utility program which will transform 40-column graphics into hi-res 80-column displays.

BrainStorm 2.0, Term Paper Writer and *Story Writer* are unique programs. The first two are combination word and idea processors. Both help you to organize your thoughts and quickly record those thoughts on screen. *Story Writer* is an intuitively-designed fiction aid. It helps you organize and write creative tales.

Public Domain

I don't know if it is because the 128 is so easy to program, or maybe it's just because there is so little commercial entertainment software available for it, but if you'll check Q-Link you'll find a good se-

lection of fun games for the 128. I downloaded an excellent Risk and Battleship game there, but perhaps the most impressive is a 128-mode, 80-column version of *Space Invaders*. The version I downloaded is as good as any commercial version I've seen. I mention those few games to encourage those who have been looking unsuccessfully for commercial titles. Any time you start downloading software, you are bound to get some losers along with the winners, but I have been pleasantly surprised with the quality of most of the 128 offerings. And it goes without saying that almost all the boards have a healthy selection of good productivity and business files, free for the taking.

Book Support

There are too many books to name them all. But, if you plan to program on your 128 I suggest you get a copy of *Commodore 128 Programmer's Reference Guide* from Bantam Computer Books. It is hefty (over 700 pages), complete and indispensable if you really want to master your system. Another good source of knowledge is Abacus which carries a full line of special subject books for the 128 like *CAD, Tricks & Tips* and *128 Internals*. For the ML programmer there is *Compute!'s 128 Machine Language for Beginners*. But my favorite is *Jim Butterfield's Machine Language for the Commodore 64, 128 and Other Commodore Computers* (Brady/Prentice Hall Press). Butterfield picked a very complex title for his book but teaches with a very understandable, uncomplicated style. For new 128 owners, I suggest *Your Commodore 128* from Osborne McGraw-Hill. If you want something to read, you won't have any trouble finding it for the 128.

Conclusion

The end of this year finds the industry still divided in its support for the 128. Most view the 64 inside the 128 as the best eight-bit game machine on the market and the 128 as the best affordable eight-bit business machine. And when you look at the strengths of each machine, it is hard to argue their reasoning. Unlike the 64, the 128 was not designed to be a break-the-mold new system. Instead it evolved from the 64.

It's best described as the full-grown version of that computer. It's easy to compare the two with a child and adult. Just as an adult can still do everything they could as a child, they can also do more—because as adult they are bigger, stronger and quicker (yet there may still be a playful child inside). Well the 128 is like that too—anything the 64 can do, the 128 can do, and much more. And as adults spend most of their lives at work, the 128 has been primarily used for business too. Which is sensible since the 128 can do its work faster than the 64 (2 MHz vs. 1 MHz), can handle larger tasks and has an improved display (both 40 and 80 columns).

And if that weren't enough to make software developers think of the computer as a business (instead of game) machine, there is the Z80 microprocessor inside of every 128 which lets it run the thousands of titles (primarily business) developed to operated under Digital Research's CP/M (Control Program/Microcomputer) system. (I know several Osborne computer owners who bought 128's because they viewed it as an affordable, and living alternative to their older CP/M machine.) If you bought your 128 to use in CP/M mode, you are probably asking what all the fuss is about, since there were literally thousands and thousands of CP/M programs ready to run on the 128 the first day it was released. But for most 128 owners, the computer was either their first computer or else they had moved up to it from the 64 world. And that crowd wants software designed specifically for the 128, in 128, 80-column mode.

For those users let me offer a suggestion. If you aren't satisfied with the type of software now available, let the software developers know about it. If you really want a 128 version of *Gunship, Summer Games* or anything else you can think of, tell the software publishing company how you feel. Believe me, if there is a profitable market for a new product they want to know about it. But at the present time, most software developers view the 128 as a business machine and are supporting it as such. The addresses of many of the software distributors presently supporting the 128 are listed below. Drop them a letter and tell them what you and other 128 users in your area would like to see in the way of entertainment or educational software. Remember the old saw—"the squeaky wheel gets the grease." ■

Companies mentioned in Getting Down to Business

Abacus Software
5370 52nd Street NE
Grand Rapids, MI 49508
(616) 698-0330
BASIC Compiler 128 $59.95
Cobol 128 $39.95
Super Pascal 128 $59.95
TAS $59.95
CADpak 128 $59.95

Access Software
545 West 550 South, Suite 130
Bountiful, UT 84010
(801) 298-9077
MACH 128 $49.95

Activision
3885 Bohannon Drive
Menlo Park, CA 94025
(415) 329-0500
Term Paper Writer $49.95
I Am The C-128 $34.95

Berkeley Softworks
2150 Shattuck Avenue
Berkeley, CA 94704
(415) 644-0883
GEOS 128 $69.95
geoCalc 128 $69.95
geoFile 128 $69.95
geoWrite Workshop 128 $69.95

Briwall
P.O. Box 129
58 Noble Street
Kutztown, PA 19530
Colorez 128 $15.00
Gnome Kit $40.00
Gnome Speed $40.00
Prototerm 128 $15.00
Home Designer 128 $49.95
Protolinc BBS $60.00

Commodore Business Machines
1200 Wilson Drive
West Chester, PA 19380
(215) 431-9100
128 Developer's Package $50.00
1750 RAM Expansion Unit $199.95

Country Road Software
70284 C.R. 143
Ligonier, IN 46767
Story Writer $14.00
BrainStorm 2.0 $24.00

CW Data-Labs
1632 Napfle Avenue
Philadelphia, PA 19111
(800) 537-LABS
Tisar 128 $89.98

Digital Solutions, Inc.
30 Wertheim Court, Unit 2
Richmond Hill, Ontario
Canada L4B 1B9
(416) 731-8775
Pocket Planner 2 $49.95
Pocket Writer 2 $49.95
Pocket Filer 2 $49.95

Electronic Arts
1820 Gateway Drive
San Mateo, CA 94404
(415) 571-7171
PaperClip III $49.95

Free Spirit Software
P.O. Box 128
58 Noble Street
Kutztown, PA 19530
(215) 683-5609
Securities Analyst--128 $39.99
Super Disk Utilities $34.95
Super 81 Utilities $39.95
RAMDOS $39.95
Oxford Pascal $34.95
The Great War $19.95
Super Chips COS $49.95

Infocom, Inc.
125 CambridgePark Drive
Cambridge, MA 02140
(617) 492-6000
Trinity $34.95
Beyond Zork $44.95
Zork Zero $49.95
Shogun $49.95
Journey $49.95

KFS Software, Inc.
P.O. Box 107
Largo, FL 34649-0107
(813) 584-2355
The Accountant $149.95

Micro Aided Designs
P.O. Box 1982
Placentia, CA 92670
(714) 996-0723
T.H.I.S. 2.0 $63.99

Patech Software, Inc.
P.O. Box 5208
Somerset, NJ 08873
(201) 238-5959
BASIC 8 $39.95
Page Illustrator $39.95
Page Builder $49.95

Progressive Peripherals & Software
464 Kalamath Street
Denver, CO 80204
(303) 825-4144
Bobsterm Pro 128 $59.95
Micro Lawyer $59.95
Matrix $34.95
Vizastar 128 $89.95
Superscript 128 $69.95
Superbase 128 $59.95

Softsync, Inc.
162 Madison Avenue
New York, NY 10016
(212) 685-2080
Personal Accountant $34.95
Accountant, Inc. $99.95

Spinnaker Software
One Kendall Square
Cambridge, MA 02139
(617) 494-1200
Business Form Shop $39.95
Power Assembler $39.95
Power C $39.95
Wordpro 128 w/Filepro 128 $39.95

Timeworks
444 Lake Cook Road
Deerfield, IL 60015
(312) 948-9200
Partner 128 $59.95
Sylvia Porter's Personal Finance 128 $69.95
Word Writer 128 $69.95
Data Manager 128 $69.95
SwiftCalc 128 $69.95

Xetec, Inc.
2804 Arnold Road
Salina, KS 67401
(913) 827-0685
FontMaster 128 $69.95

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doubling back towards Norway and making a dash south past the Faeroe Islands, also holds a reasonable chance of success. The advantage to following the Bismarck's historical route through the Denmark Strait is that if you manage to run the gauntlet of British cruisers and battleships awaiting you there, then the Bismarck stands a good chance of eluding the rest of the Royal Navy. In contrast, any strategy that first takes the Bismarck east before she heads south carries the risk of encounters with both squadrons of British battleships, as well as the torpedo planes of the carrier Victorious.

The British commander definitely has the more forgiving role in *Bismarck*. With a small fleet to throw in the path of the Bismarck, you can lose several ships and still win the game. In fact, that is what happened historically: the Bismarck sank the Hood and damaged several other battleships, but was finally overwhelmed by the sheer number of British warships. In the game a similar team effort will be needed to destroy the Bismarck. Don't hesitate to sacrifice any of your ships, particularly the heavy cruisers guarding the Denmark Strait, in unequal combat. Any damage the German battleship incurs prior to encountering the heavier elements of your fleet only makes the task of sending her to the bottom that much easier.

To a large degree, however, questions of strategy take a back seat to arcade skills in *Bismarck*. No matter how ingeniously you arrange things, if you can't execute in battle, then all of your planning will go for nought. Even a single cruiser can cripple the Bismarck if given enough time. Likewise, the Bismarck can stumble into the entire British fleet over the course of a game and sink three quarters of it if British gunnery is sufficiently inept. Fans of computer war games may find this emphasis on arcade skills frustrating. Superior strategies notwithstanding, you will be rewarded with nothing but a string of defeats until you achieve a level of basic competency in the battle routines.

Bismarck strikes an imperfect balance between its arcade and war game elements. For this reason, *Bismarck* succeeds more when viewed as an arcade game leavened with a little history than as a simulation spiced with some arcade-like action. Nonetheless, if you are the type of player who can appreciate any game as long as it's lively, challenging and fun, then you should find *Bismarck* well-suited to your tastes. ■

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current position, turn head to 6:00 position (backward view), straight down, straight up and return to forward viewing. When one of the above options is selected, you will find all of your surroundings (including the jet) to be in the exact view you selected! While in these modes you can also activate any of the plane's functions and controls (e.g., when ejecting you can actually watch the canopy deploy and see yourself parachuting to safety). This is something that must be seen to be appreciated, as it provides a truly spectacular environment for your flight.

Summary

F/A-18 Interceptor is one of the best flight simulators I have ever seen for any computer system. The flight environment is very realistic, with a smooth-scrolling background providing a realistic flight, great sound effects and very detailed graphics. There were many more options and missions to *Interceptor* than described in this review. However, this game requires neither a professional pilot to fly it nor a professional arcade addict to enjoy it. This is truly one flight simulator that can be enjoyed by all!

Dogfighting Tips

- When a missile lock-on is achieved, don't wait too long. Fire the missiles when the jet is the closest to you and the diamond is an orange color. After a missile has been fired, pull up quickly. If you wait too long, you might find yourself on a head-to-head collision course with your foe!
- If an IR missile has been fired at you, dispense a flare and climb above your current altitude. In most cases, the missile will not follow you. However, if it does, dispense another flare and do some heavy right or left rolls. This should take care of the problem.
- Never underestimate an enemy aircraft, for they are very good dogfighters in the later missions. The only way to defeat them is to either hit them with a missile or out-dogfight them. Caution! you can never run away from them, just hope for a kill!
- Don't be afraid to bail out in an emergency situation. When the eject warning buzzes, you should bail out as soon as possible. If you wait too long you will find the G forces too great for a bail out. However, the Air Force frowns upon pilots losing their planes, so keep the bail outs to a minimum. ■

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CubeMaster contains two types of vanity boards to make serious play more imperative. The first keeps track of the best finishing time for each level. The other is a list of the top scores for complete games (finishing all 100 levels). Both lists are saved permanently to disk.

Although I would suggest *CubeMaster* for all serious gamers, avoid it at all costs if you get frustrated with arcade games easily.

Other options appear on a selection screen at the start of a game. It allows you to choose the starting level of the game and your name, enter a practice screen to learn how to fly your character and a couple other options. Two pluses for *CubeMaster* are the inclusion of the practice screen and a pause option.

In addition to playing the game, you can select from the Workbench or CLI the Credits icon, CopyProtection icon or Scores icon. The last shows you the contents of the scores file—both the best times and top scores. Credits is a short recorded message of thanks from Perry Kivolowitz. One thing that runs rampant in the *CubeMaster* manual and game is the humor of its designer. This is a nice touch, and the recordings of the people who work for ASDG (played by selecting the CopyProtection icon) add to the humor. They are simple pleas not to copy *CubeMaster*, with such statements as, "Software piracy does affect me—and I do have an axe." All of the efforts of the design team come together to make a complete whole.

Although I would suggest *CubeMaster* for all serious gamers, avoid it at all costs if you get frustrated with arcade games easily. One problem with *CubeMaster* is that if you're going too fast, gaining control of your ship is nearly impossible without pressing the Brake ("B") key, losing valuable time. The other complaint I have is that the words *CubeMaster* and CubeDrone have that capital letter in the middle, making typing this article annoying. But seriously, *CubeMaster* is graphically rich, has wonderful sounds like "yippee," "ow" and "oo" to keep you smiling and is a unique variation on a classic arcade game to keep the arcade gamers of the computer world happy. ■

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fortunate ship. When one admiral finally destroys the fleet of his foe, the game is officially over. *Battleship* also contains detailed colorful graphics and digitized sounds. Keep an eye peeled for this one, mate. It looks like a lot of fun.

Now here's a juicy tidbit. *The Legend of Blacksilver* (a new Masters Collection product) was developed by the same people who worked on *Legacy of The Ancients.* As our tale begins, the beautiful Princess of Bantross is looking for a hero to rescue her father who is being held captive by the evil Baron of Taragas. Possessed by the mysterious mineral Blacksilver, the mad Baron has made the decision to sink the existing continent and raise a new one (to be populated by creatures of his own design) from the depths of the sea. Players travel through a land of medieval splendor where they encounter local politics, deadly dragons and powerful sorcerers. The ground shakes and the waters rise as black magic from the past is unleashed. Pick up clues and objects along the way that may help you in your quest to free the missing king. In the end you must fashion a sword of Blacksilver, to defeat Taragas and save your world from total annihilation. *The Legend of Blacksilver* isn't the first fantasy role-playing game on the market, but I believe it's setting the standards for future software projects of this nature.

Mama Mia, it's *Sports-A-Roni!* Did you ever have the urge to pole vault over the Arno River, balance pasta plates near the Leaning Tower of Pisa, or have a pogo stick party in the Roman ruins? Now don't give me that funny look. These challenges actually exist in *Sports-A-Roni,* an amusing multi-event program set in various Italian locations. Other contests include: a Sack Race down the ancient streets of Naples, Verona's Pole Climb (where the pole has been covered with olive oil), a Boot Toss in the Coliseum, an old-fashioned pillow fight (in a wobbly gondola) and the Run Up The Wall. These contests have excellent graphics, the game play is good, and everything is done in a comical manner. While Rice-A-Roni™ is the San Francisco treat, *Sports-A-Roni* promises to be an international software delicacy.

Trials of Honor is another new title from the Masters Collection. This unusual adventure game, taking place during the dark ages of Europe, is a recreation of the days when pageantry and chivalry were a way of life. As the story begins, the monarch of the realm has recently been killed, and his murderer rules the kingdom with an iron fist. The player is the former heir to the throne, so he sets off on a quest to obtain his birthright and restore justice to the land. There are a number of different challenges in the game, where the user displays his talent as an archer, destroys monsters in the labyrinth, etc. When all the tests and trials are over it's time to tackle your final foe: the false king himself. *Trials of Honor* appears on the scene shortly before Christmas.

Skate Wars is also scheduled to ship during the fourth quarter. In the future, professional athletes play a deadly game that's a combination of hockey, soccer and total madness. Players literally fly across the ice, avoiding explosive devices, scaling walls and leaping over obstacles such as bottomless pits. Their goal is to score points and stay alive. *Skate Wars* is action personified and something I'm looking forward to playing.

Amiga: *Final Assault, Battleship* and *Skate Wars* should appear in stores during the third quarter. Holiday releases include: *Technocop, Tower Toppler, Sports-A-Roni, Street Sports Football,* and *The Games: Summer Edition.* Speaking of *The Games: Summer Edition,* it's the official sequel to The *Games: Winter Edition* and licensed with the U.S. Olympic Committee. Here are the events you'll find in the program: the Uneven Parallel Bars, Springboard Diving, Pole Vaulting, Velodrome Sprint Cycling, Hammer Throw, Hurdles, Archery and the Rings. I have seen demos of some of the 64 events that are absolutely fantastic. The graphics of the athletes are excellent, their movements are superb, and the background scenery looks very realistic. I wish to go on record with the prediction that *The Games: Summer Edition* (for the 64 in August and the Amiga later this year) will be one of the top-selling programs of the year.

GameTek

64/128: Let me introduce you to GameTek, a new software company that definitely bears watching. The September/October time frame will see the release of *Double Dare, Hollywood Squares, Candy Land,* and *Chutes and Ladders.* Yes, *Double Dare* (one of the hottest game shows on television) is finally coming to a 64 near you. This unique version of the game contains hundreds of interesting multiple-choice questions which are geared to the knowledge of the average child. If you can't answer a particular question, you can still earn money by accepting the physical challenge. These unusual contests (like their TV counterparts) dare you to perform a silly stunt before a limited amount of time runs out. One situation, for instance, has the player catching pies in his oversized pants. I've actually seen this physical challenge on the TV show, and it's really a lot of fun when you perform the same task on the 64. The game also features the infamous obstacle course, where the user has the opportunity to win a truckload of valuable prizes.

Candy Land and *Chutes and Ladders* are equally impressive. Both of these products designed for younger children are faithful reproductions of the Milton Bradley board games. *Candy Land,* an introduction to colors, was developed for prereaders, while *Chutes and Ladders* is an introduction to counting.

I'm sure you already know that Gametek's *Super Password* and *Hollywood Squares* are the official microcomputer translations of the popular TV game shows.

A second group of programs scheduled for release before Christmas include: *Go to The Head of The Class* and four Fisher-Price educational programs. *Go to The Head of The Class* is an educational trivia game for the entire family. The product contains three levels of questions covering a variety of interesting topics.

Fisher-Price programs translate the company's best-selling educational toys into computer games. *Fun Flier,* for example, is a simple flight simulator for kids. It challenges the pilot to take off from the runway and rapidly gain altitude while avoiding obstacles like clouds, flocks of birds, and even other aircraft. This unusual flight game teaches good eye/hand coordination, and I'm sure younger pilots will approve of the way it operates. The Fisher-Price *Firehouse* program has youngsters rescuing people from buildings and pets from trees. *Bowling* simulates and incorporates a cleverly disguised arithmetic lessons. A ride on *Bus Trip* literally puts the child in the driver's seat of a big bus. The player has to drive the vehicle safely, obey the rules of the road, stop at stop signs, let people off at the right places, etc. As you can see, each Fisher-Price program is an exciting learning experience targeted at pre-school and early school-aged children.

Coming in 1989: Early next year, *The Price is Right* and *Press Your Luck* (two more television game show titles) will be appearing in stores across the country. Four new Fisher-Price programs will also be available about that time.

Origin Systems

64/128: Get ready for adventure! Lord British is on the prowl again. *Ultima V,* the biggest and most impressive *Ultima* challenge of all, has recently hit the market. If you're really into role-playing games, take a look at this product before purchasing another program.

Times of Lore, on the other hand, points the company in a totally new direction. This incredible product merges true fantasy role-playing elements with authentic arcade game action. They've incorporated a simple but powerful icon and window interface in the program, but kept the traditional role-playing ingredients intact (such as interactive conversation with game characters, a complex plot and the use of magic and mysticism). Combat, however, is pure arcade action all the way—quick and smooth with great graphics. The quest takes approximately 50-60 hours to complete. The plot involves an ancient land, a missing king and his infant son, palace intrigues, the struggle for control of the realm, heroes for hire, a prophecy, wizards, assassins and assorted (often deadly) creatures. Put this all together and you have *Times of Lore,* a definite winner in the September software wars.

T.A.N.C. (Tactically Aware Neural Cybertank) is another item scheduled for release in the fall. The game takes place in a tense futuristic era, where wars are fought with unmanned tanks and the like. The player becomes a CAD/CAM engineer in the program. His job consists of designing, constructing and testing new models of tanks in the field. This whole concept is really neat because the user has to learn a simple programming language before he can start building tanks of his own design. There are more than 12 different chassis designs to choose from in the game, and a large number of add-ons exist (including scanners, lasers, particle beams and various missiles). Once your tank has been constructed, use the compiler on the disk to prevent other players from examining your work. Tank designs can also be easily loaded to and from bulletin boards. It's interesting to note that a vehicle generated on the IBM version of the product will operate on all other translations of the game and vice versa. Players also have the option of competing against each other, working together to vanquish a common foe, or going head-to-head with the computer. I was equally pleased with the tile graphic terrain builder. The product contains a detailed computer map of Austin, Texas, but you can construct almost any type of region for your battlefield. If you ever thought about "trashing" your own community, *T.A.N.C.* makes it possible to do just that.

Amiga: *Ultima IV* will be hitting the market early in September, while *Ultima V* should be in consumer hands 30 days later. By the way, both of these games are updated versions of their 64 cousins which display excellent graphics and an unusual catalog of sounds.

Coming in 1989: *Space Rogue* is, as the name implies, a sophisticated sci-fi role-playing game that should be out during the first or second quarter of the year. This 64 program contains amazing 3D graphics and casts the player in the role of a hot-shot spaceship pilot (among other things). An Amiga version of *Times of Lore* is also on the drawing board.

Taito

64/128 and Amiga: The classic *Space Invaders* coin-op game has a special place in my heart. It was a unique item in its day, and it set the stage for the first arcade game revolution. Taito, the developer of that incredible arcade game, is now preparing to conquer a new field: the home computer entertainment industry.

Late in the third quarter, for example, *Gladiator* will be taking on all comers. See the sights of ancient Rome as you battle the greatest fighters of the empire.

Qix is scheduled to ship in September. I don't know very much about this particular title, but I understand it's a thinking man's arcade game (where you have to make a lot of quick decisions).

Software pilots take notice: you can fly the legendary P-40 Tiger Shark in Taito's new *Sky Shark* program. Take your aircraft deep behind enemy lines, where you can knock out military targets on land and in the sea. Watch out for armor-piercing artillery fire, and prepare yourself for the arcade game flight of your life. Consumers can earn their software wings sometime late in the fall.

Amiga: *Operation Wolf* is a software replica of the world's #1 coin-op arcade game. Terrorists have taken a number of hostages and someone has to rescue them. This assignment calls for the talents of an experienced commando, who can strike fast and shoot his foes with unerring accuracy. You are that person. Grabbing your trusty machine gun, you volunteer to right this colossal wrong. A smart player uses ammunition sparingly, because he can only carry a limited supply. Choose your targets wisely and blast them (and only them) before they have the opportunity to nail you first. *Operation Wolf* is basically a large outdoor shooting gallery with a storyline that could actually happen tomorrow.

Move over Conan. *Rastan,* the legendary warlord of the realm, is fighting for his life. Our hero has declared war on the powerful Castle King and his evil army of followers. Slash your way across the land (battling snakes, bats, bugmen, wizards, skeletons, a serpent lady, chimera and the like). The player also has to leap over pits of fire, destroy the beasts of the underworld and acquire the magical flaming sword (the ultimate hacking weapon). Complete these tasks and Rastan still has to face the greatest challenge of all: a fight to the finish with the cunning Castle King. I really enjoyed this program because it contains good graphics, an excellent musical sound track and six exciting levels of play.

Gangs of street punks, outlaw bikers and local hoods are gradually taking over the city. It isn't safe for decent people to walk the streets any longer. In *Renegade,* the consumer uses his flying fists and killer kicks to put some of these characters out of commission. There are five different levels in the game: Subway, Pier, Sleezy Street, Mean Street and the Warehouse. Once you've conquered the forces of evil, the sequence of events begins again (but this time it's harder to defeat your foes). Whenever you play *Renegade,* it pays to remember three things: (1) Don't allow your opponents to gang up on you, (2) keep an eye on the leader of the group because he's aggressive and might have a weapon, and (3) if the opportunity presents itself, use the body of a thug to disable members of his own gang. Everything happens very quickly in the program, while the enemy strategy is absolutely fantastic.

Software Companies

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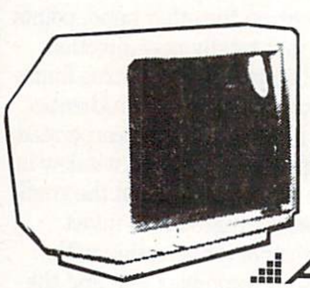
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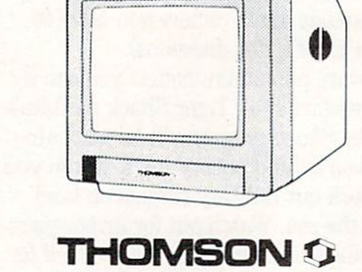
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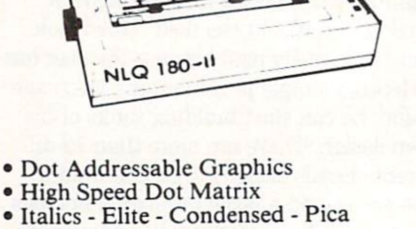
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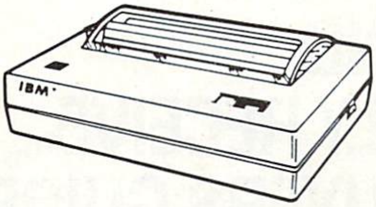
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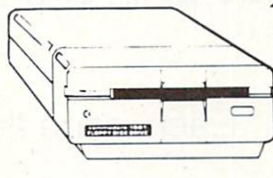
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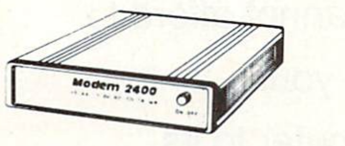
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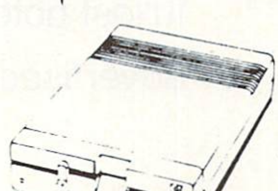
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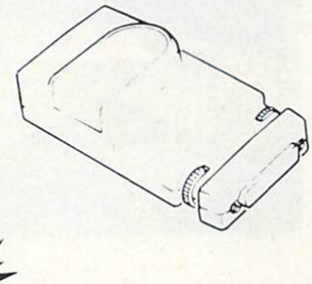
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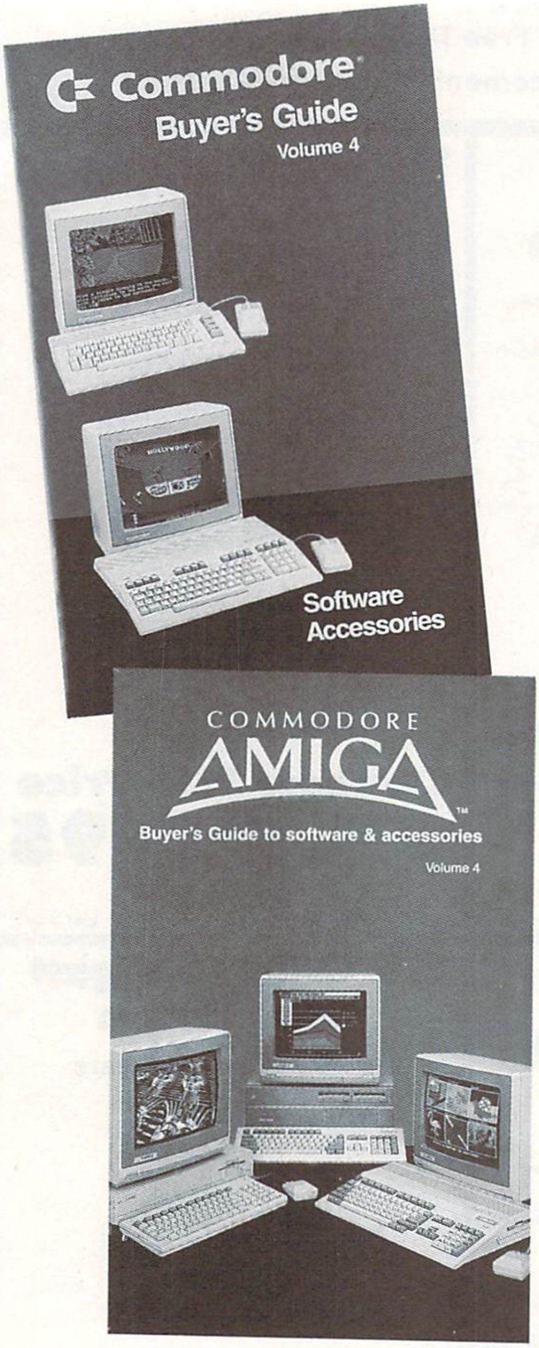
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Commodore
MAGAZINE

The Commodore and Commodore Amiga Buyers' Guides are published under the auspices of Commodore Magazine.

HOW TO ENTER PROGRAMS

The programs which appear in this magazine have been run, tested and checked for bugs and errors. After a program is tested, it is printed on a letter quality printer with some formatting changes. This listing is then photographed directly and printed in the magazine. Using this method ensures the most error-free program listings possible.

Whenever you see a word inside brackets, such as [DOWN], the word represents a keystroke or series of keystrokes on the keyboard. The word [DOWN] would be entered by pressing the cursor-down key. If multiple keystrokes are required, the number will directly follow the word. For example, [DOWN4] would mean to press the cursor-down key four times. If there are multiple words within one set of brackets, enter the keystrokes directly after one another. For example, [DOWN, RIGHT2] would mean to press the cursor-down key once and then the cursor-right key twice. Note: Do not enter the commas.

In addition to these graphic symbols, the keyboard graphics are all represented by a word and a letter. The word is either SHFT or CMD and represents the SHIFT key or the Commodore key. The letter is one of the letters on the keyboard. The combination [SHFT E] would be entered by holding down the SHIFT key and pressing the E. A number following the letter tells you how many times to type the letter. For example, [SHFT A4,CMD B3] would mean to hold the SHIFT key and press the A four times, then hold down the Commodore key and press the B three times.

The following chart tells you the keys to press for any word or words inside of brackets. Refer to this chart whenever you aren't sure what keys to press. The little graphic next to the keystrokes shows you what you will see on the screen.

SYNTAX ERROR

This is by far the most common error encountered while entering a program. Usually (sorry folks) this means that you have typed something incorrectly on the line the syntax error refers to. If you get the message "?Syntax Error Break In Line 270", type LIST 270 and press RETURN. This will list line 270 to the screen. Look for any non-obvious mistakes like a zero in place of an O or vice-versa. Check for semicolons and colons reversed and extra or missing parenthesis. All of these things will cause a syntax error.

There is only one time a syntax error will tell you the "wrong" line to look at. If the line the syntax error refers to has a function call (i.e., FN A(3)), the syntax error may be in the line that defines the function, rather than the line named in the error message. Look for a line near the beginning of the program (usually) that has DEF FN A(X) in it with an equation following it. Look for a typo in the equation part of this definition.

ILLEGAL QUANTITY ERROR

This is another common error message. This can also be caused by a typing error, but it is a little harder to find. Once again, list the line number that the error message refers to. There is probably a poke statement on this line. If there is, then the error is referring to what is trying to be poked. A number must be in the range of zero to 255 to be poke-able. For example, the statement POKE 1024,260 would produce an illegal quantity error because 260 is greater than 255.

Most often, the value being poked is a variable (A,X...). This error is telling you that this variable is out of range. If the variable is being read from data statements, then the problem is somewhere in the data statements. Check the data statements for missing commas or other typos.

If the variable is not coming from data statements, then the problem will be a little harder to find. Check each line that contains the variable for typing mistakes.

OUT OF DATA ERROR

This error message is always related to the data statements in a program. If this error occurs, it means that the program has run out of data items before it was supposed to. It is usually caused by a problem or typo in the data statements. Check first to see if you have left out a whole line of data. Next, check for missing commas between numbers. Reading data from a page of a magazine can be a strain on the brain, so use a ruler or a piece of paper or anything else to help you keep track of where you are as you enter the data.

OTHER PROBLEMS

It is important to remember that the 64 and the PET/CBM computers will only accept a line up to 80 characters long. The VIC 20 will accept a line up to 88 characters long. Sometimes you will find a line in a program that runs over this number of characters. This is not a mistake in the listing. Sometimes programmers get so carried away crunching programs that they use abbreviated commands to get more than 80 (or 88) characters on one line. You can enter these lines by abbreviating the commands when you enter the line. The abbreviations for BASIC commands are on pages 133-134 of the VIC 20 user guide and 130-131 of the Commodore 64 user's guide.

If you type a line that is longer than 80 (or 88) characters, the computer will act as if everything is ok, until you press RETURN. Then, a syntax error will be displayed (without a line number). Many people write that the computer gives them a syntax error when they type the line, or that the computer refuses to accept a line. Both of these problems are results of typing a line of more than 80 (or 88) characters.

"[HOME]" = UNSHIFTED CLR/ HOME
"[CLEAR]" = SHIFTED CLR/HOME
"[DOWN]" = CURSOR DOWN
"[UP]" = CURSOR UP
"[RIGHT]" = CURSOR RIGHT
"[LEFT]" = CURSOR LEFT
"[RVS]" = CONTROL 9
"[RVOFF]" = CONTROL 0
"[BLACK]" = CONTROL 1
"[WHITE]" = CONTROL 2
"[RED]" = CONTROL 3
"[CYAN]" = CONTROL 4
"[PURPLE]" = CONTROL 5
"[GREEN]" = CONTROL 6
"[BLUE]" = CONTROL 7
"[YELLOW]" = CONTROL 8
"[ORANGE]" = COMMODORE 1
"[BROWN]" = COMMODORE 2
"[L. RED]" = COMMODORE 3
"[GRAY1]" = COMMODORE 4
"[GRAY2]" = COMMODORE 5
"[L. GREEN]" = COMMODORE 6
"[L. BLUE]" = COMMODORE 7
"[GRAY3]" = COMMODORE 8
"[F1]" = F1
"[F2]" = F2
"[F3]" = F3
"[F4]" = F4
"[F5]" = F5
"[F6]" = F6
"[F7]" = F7
"[F8]" = F8
"[POUND]" = ENGLISH POUND
"[SHFT ^]" = PI SYMBOL
"[^]" = UP ARROW

GRAPHIC SYMBOLS WILL BE REPRESENTED AS EITHER THE LETTERS SHFT (SHIFT) AND A KEY ("[SHFT Q,SHFT J,SHFT D,SHFT S]") OR THE LETTERS CMDR (COMMODORE) AND A KEY ("[CMDR Q,CMDR G,COMDR Y,CMDR H]"). IF A SYMBOL IS REPEATED, THE NUMBER OF REPITITIONS WILL BE DIRECTLY AFTER THE KEY AND BEFORE THE COMMA ("[SPACE3,SHFT S4,CMDR M2]").

THE PROGRAM WON'T RUN!!

This is the hardest of problems to resolve; no error message is displayed, but the program just doesn't run. This can be caused by many small mistakes typing a program in. First check that the program was written for the computer you are using. Check to see if you have left out any lines of the program. Check each line of the program for typos or missing parts. Finally, press the RUN/STOP key while the program is "running". Write down the line the program broke at and try to follow the program backwards from this point, looking for problems.

IF ALL ELSE FAILS

You've come to the end of your rope. You can't get the program to run and you can't find any errors in your typing. What do you do? As always, we suggest that you try a local user group for help. In a group of even just a dozen members, someone is bound to have typed in the same program. The user group may also have the program on a library disk and be willing to make a copy for you.

If you do get a working copy, be sure to compare it to your own version so that you can learn from your errors and increase you understanding of programming.

If you live in the country, don't have a local user group, or you simply can't get any help, write to us. If you do write to us, include the following information about the program you are having problems with:

The name of the program
The issue of the magazine it was in
The computer you are using
Any error messages and the line numbers
Anything displayed on the screen
A printout of your listing (if possible)

All of this information is helpful in answering your questions about why a program doesn't work. A letter that simply states "I get an error in line 250 whenever I run the program" doesn't give us much to go on. Send your questions to:

Commodore Magazine
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ATTN: Program Problem

Have fun with the programs!

HOW TO USE THE MAGAZINE ENTRY PROGRAMS

The Magazine Entry Programs on the next pages are two BASIC machine language programs that will assist you in entering the programs in this magazine correctly. There are versions for both the Commodore 64 and the Commodore 128. Once the program is in place, it works its magic without you having to do anything else. The program will not let you enter a line if there is a typing mistake on it, and better yet, it identifies the kind of error for you.

Getting Started

Type in the Magazine Entry Program carefully and save it as you go along (just in case). Once the whole program is typed in, save it again on tape or disk. Now RUN the program. The word POKING will appear on the top of the screen with a number. The number will increment from 49152 up to 49900 (4864-5545 on the 128) and just lets you know that the program is running. If everything is ok, the program will finish running and say DONE. Then type NEW. If there is a problem with the data statements, the program will tell you where to find the problem. Otherwise the program will say "mistake in data statements." Check to see if commas are missing, or if you have used periods instead of commas. Also check the individual data items.

Once the program has run, it is in memory ready to go. To activate the program type SYS49152 (SYS4864 on the 128), and press RETURN. You are now ready to enter the programs from the magazine. To disable the Entry Program, just type KILL [RETURN] on the 64 or SYS4867 on the 128.

The checksums for each line are the same for both the 64 and 128, so you can enter your 64 programs on the 128 if you'd like.

Typing the Programs

All the BASIC program listings in this magazine that are for the 64 or 128 have an apostrophe followed by four letters at the end of the line (e.g., 'ACDF). If you plan to use the Magazine Entry Program to enter your programs, the apostrophe and letters **should** be entered along with the rest of the line. This is a checksum that the Magazine Entry Program uses.

Enter the line and the letters at the end and then press RETURN, just as you normally would.

If the line is entered correctly, a bell is sounded and the line is entered into the computer's memory (without the characters at the end).

If a mistake was made while entering the line, a noise is sounded and an error message is displayed. Read the error message, then press any key to erase the message and correct the line.

IMPORTANT

If the Magazine Entry Program sees a mistake on a line, it **does not** enter that line into memory. This makes it impossible to enter a line incorrectly.

Error Messages and What They Mean

There are five error messages that the Magazine Entry Program uses. Here they are, along with what they mean and how to fix them.

NO CHECKSUM: This means that you forgot to enter the apostrophe and the four letters at the end of the line. Move the cursor to the end of the line you just typed and enter the checksum.

QUOTE: This means that you forgot (or added) a quote mark somewhere in the line. Check the line in the magazine and correct the quote.

KEYWORD: This means that you have either forgotten a command or spelled one of the BASIC keywords (GOTO, PRINT . .) incorrectly. Check the line in the magazine again and check your spelling.

OF CHARACTERS: This means that you have either entered extra characters or missed some characters. Check the line in the magazine again. This error message will also occur if you misspell a BASIC command, but create another keyword in doing so. For example, if you misspell PRINT as PRONT, the 64 sees the letter P and R, the BASIC keyword ON and then the letter T. Because it sees the keyword ON, it thinks you've got too many characters, instead of a simple misspelling. Check spelling of BASIC commands if you can't find anything else wrong.

UNIDENTIFIED: This means that you have either made a simple spelling error, you typed the wrong line number, or you typed the checksum incorrectly. Spelling errors could be the wrong number of spaces inside quotes, a variable spelled wrong, or a word misspelled. Check the line in the magazine again and correct the mistake.

```
10 PRINT"[CLEAR]POKING -";
20 P=49152 :REM $CØØØ  (END AT
   49900/$C2EC)
30 READ A$:IF A$="END"THEN 11Ø
4Ø L=ASC(MID$(A$,2,1))
5Ø H=ASC(MID$(A$,1,1))
6Ø L=L-48:IF L>9 THEN L=L-7
7Ø H=H-48:IF H>9 THEN H=H-7
8Ø PRINT"[HOME,RIGHT12]"P;
9Ø IF H>15 OR L>15 THEN PRINT
   :PRINT"DATA ERROR IN LINE";
   1ØØØ+INT((P-49152)/8):STOP
1ØØ B=H*16+L:POKE P,B:T=T+B:P=P+1
   :GOTO 3Ø
11Ø IF T<>862ØØ THEN PRINT
   :PRINT"MISTAKE IN DATA --> CHECK
   DATA STATEMENTS":END
12Ø PRINT"DONE":END
1ØØØ DATA 4C,1F,CØ,ØØ,ØØ,ØØ,ØØ,ØØ
1ØØ1 DATA ØØ,ØØ,ØØ,ØØ,ØØ,ØD,ØØ,21
1ØØ2 DATA C1,27,C1,2F,C1,3F,C1,4C
1ØØ3 DATA C1,EA,EA,EA,4C,54,CØ,A2
1ØØ4 DATA Ø5,BD,19,CØ,95,73,CA,1Ø
1ØØ5 DATA F8,6Ø,6Ø,AØ,Ø3,B9,ØØ,Ø2
1ØØ6 DATA D9,Ø4,C1,DØ,F5,88,1Ø,F5
1ØØ7 DATA AØ,Ø5,B9,A2,E3,99,73,ØØ
1ØØ8 DATA 88,1Ø,F7,A9,ØØ,8D,18,D4
1ØØ9 DATA 4C,EF,CØ,E6,7A,DØ,Ø2,E6
1Ø1Ø DATA 7B,4C,79,ØØ,A5,9D,FØ,F3
1Ø11 DATA A5,7A,C9,FF,DØ,ED,A5,7B
1Ø12 DATA C9,Ø1,DØ,E7,2Ø,2B,CØ,AD
1Ø13 DATA ØØ,Ø2,2Ø,74,CØ,9Ø,DC,AØ
1Ø14 DATA ØØ,4C,A9,C1,C9,3Ø,3Ø,Ø6
1Ø15 DATA C9,3A,1Ø,Ø2,38,6Ø,18,6Ø
1Ø16 DATA C8,B1,7A,C9,2Ø,DØ,Ø3,C8
1Ø17 DATA DØ,F7,B1,7A,6Ø,18,C8,B1
1Ø18 DATA 7A,FØ,37,C9,22,FØ,F5,6D
1Ø19 DATA Ø3,CØ,8D,Ø3,CØ,AD,Ø4,CØ
1Ø2Ø DATA 69,ØØ,8D,Ø4,CØ,4C,8E,CØ
1Ø21 DATA 18,6D,Ø5,CØ,8D,Ø5,CØ,9Ø
1Ø22 DATA Ø3,EE,Ø6,CØ,EE,Ø9,CØ,4C
1Ø23 DATA CE,C1,18,6D,Ø8,CØ,8D,Ø8
1Ø24 DATA CØ,9Ø,Ø3,EE,Ø7,CØ,EE,ØA
1Ø25 DATA CØ,6Ø,ØA,A8,B9,ØF,CØ,85
1Ø26 DATA FB,B9,1Ø,CØ,85,FC,AØ,ØØ
1Ø27 DATA A9,12,2Ø,D2,FF,B1,FB,FØ
1Ø28 DATA Ø6,2Ø,D2,FF,C8,DØ,F6,2Ø
1Ø29 DATA BC,C2,2Ø,E4,FF,FØ,FB,AØ
1Ø3Ø DATA 18,B9,Ø8,C1,2Ø,D2,FF,88
1Ø31 DATA 1Ø,F7,68,68,A9,ØØ,8D,ØØ
1Ø32 DATA Ø2,4C,74,A4,4B,49,4C,4C
1Ø33 DATA 91,91,ØD,2Ø,2Ø,2Ø,2Ø,2Ø
1Ø34 DATA 2Ø,2Ø,2Ø,2Ø,2Ø,2Ø,2Ø,2Ø
1Ø35 DATA 2Ø,2Ø,2Ø,2Ø,2Ø,2Ø,2Ø,91
1Ø36 DATA ØD,51,55,4F,54,45,ØØ,4B
1Ø37 DATA 45,59,57,4F,52,44,ØØ,23
1Ø38 DATA 2Ø,4F,46,2Ø,43,48,41,52
1Ø39 DATA 41,43,54,45,52,53,ØØ,55
1Ø4Ø DATA 4E,49,44,45,4E,54,49,46
1Ø41 DATA 49,45,44,ØØ,4E,4F,2Ø,43
1Ø42 DATA 48,45,43,4B,53,55,4D,ØØ
1Ø43 DATA C8,B1,7A,DØ,FB,84,FD,CØ
1Ø44 DATA Ø9,1Ø,Ø3,4C,84,C1,88,88
1Ø45 DATA 88,88,88,B1,7A,C9,27,DØ
1Ø46 DATA 13,A9,ØØ,91,7A,C8,A2,ØØ
1Ø47 DATA B1,7A,9D,3C,Ø3,C8,E8,EØ
1Ø48 DATA Ø4,DØ,F5,6Ø,A9,Ø4,4C,CA
1Ø49 DATA CØ,AØ,ØØ,B9,ØØ,Ø2,99,4Ø
1Ø5Ø DATA Ø3,FØ,FØ,C8,DØ,F5,AØ,ØØ
1Ø51 DATA B9,4Ø,Ø3,FØ,E6,99,ØØ,Ø2
1Ø52 DATA C8,DØ,F5,2Ø,96,C1,4C,12
1Ø53 DATA C2,AØ,Ø9,A9,ØØ,99,Ø3,CØ
1Ø54 DATA 8D,3C,Ø3,88,1Ø,F7,A9,8Ø
1Ø55 DATA 85,Ø2,AØ,ØØ,2Ø,58,C1,2Ø
1Ø56 DATA 89,C1,2Ø,ED,C1,E6,7A,E6
1Ø57 DATA 7B,2Ø,7C,A5,AØ,ØØ,2Ø,8Ø
1Ø58 DATA CØ,FØ,DØ,24,Ø2,FØ,Ø6,4C
1Ø59 DATA A8,CØ,4C,CE,C1,C9,22,DØ
1Ø6Ø DATA Ø6,2Ø,8D,CØ,4C,CE,C1,2Ø
1Ø61 DATA BA,CØ,4C,CE,C1,AØ,ØØ,B9
1Ø62 DATA ØØ,Ø2,2Ø,74,CØ,C8,9Ø,ØA
1Ø63 DATA 18,6D,Ø7,CØ,8D,Ø7,CØ,4C
1Ø64 DATA EF,C1,88,A2,ØØ,B9,ØØ,Ø2
1Ø65 DATA 9D,ØØ,Ø2,FØ,Ø4,E8,C8,DØ
1Ø66 DATA F4,6Ø,18,AD,Ø9,CØ,69,41
1Ø67 DATA 8D,Ø9,CØ,38,AD,ØA,CØ,E9
1Ø68 DATA 19,9Ø,Ø6,8D,ØA,CØ,4C,1C
1Ø69 DATA C2,AD,ØA,CØ,69,41,8D,ØA
1Ø7Ø DATA CØ,AD,Ø3,CØ,6D,Ø5,CØ,48
1Ø71 DATA AD,Ø4,CØ,6D,Ø6,CØ,8D,ØC
1Ø72 DATA CØ,68,6D,Ø8,CØ,8D,ØB,CØ
1Ø73 DATA AD,ØC,CØ,6D,Ø7,CØ,8D,ØC
1Ø74 DATA CØ,38,E9,19,9Ø,Ø6,8D,ØC
1Ø75 DATA CØ,4C,52,C2,AD,ØC,CØ,69
1Ø76 DATA 41,8D,ØC,CØ,AD,ØB,CØ,E9
1Ø77 DATA 19,9Ø,Ø6,8D,ØB,CØ,4C,67
1Ø78 DATA C2,AD,ØB,CØ,69,41,8D,ØB
1Ø79 DATA CØ,AØ,Ø1,AD,Ø9,CØ,CD,3C
1Ø8Ø DATA Ø3,DØ,2Ø,C8,AD,ØA,CØ,CD
1Ø81 DATA 3D,Ø3,DØ,17,C8,AD,ØB,CØ
1Ø82 DATA CD,3E,Ø3,DØ,ØE,AD,ØC,CØ
1Ø83 DATA CD,3F,Ø3,DØ,Ø6,2Ø,CC,C2
1Ø84 DATA 4C,4B,CØ,98,48,68,4C,CA
1Ø85 DATA CØ,A9,2Ø,8D,ØØ,D4,8D,Ø1
1Ø86 DATA D4,A9,Ø9,8D,Ø5,D4,A9,ØF
1Ø87 DATA 8D,18,D4,6Ø,2Ø,A9,C2,A9
1Ø88 DATA 81,2Ø,DF,C2,A9,8Ø,2Ø,DF
1Ø89 DATA C2,4C,D9,C2,2Ø,A9,C2,A9
1Ø9Ø DATA 11,2Ø,DF,C2,A9,1Ø,2Ø,DF
1Ø91 DATA C2,A9,ØØ,8D,Ø4,D4,6Ø,8D
1Ø92 DATA Ø4,D4,A2,7Ø,AØ,ØØ,88,DØ
1Ø93 DATA FD,CA,DØ,FA,6Ø,END
```

END

```
5 TRAP 200
10 PRINT"[CLEAR]POKING -";
20 P=4864 :REM $1300  (END AT
   5545/$15A9)
30 READ A$:IF A$="END"THEN 110
80 PRINT"[HOME,RIGHT12]"P;
100 B=DEC(A$):POKE P,B:T=T+B:P=P+1
   :GOTO 30
110 IF T<>59382 THEN PRINT
   :PRINT"MISTAKE IN DATA --> CHECK
   DATA STATEMENTS":END
120 PRINT"DONE":END
200 PRINT:PRINT"DATA ERROR IN LINE";
   1000+INT((P-4864)/8):END
1000 DATA 4C,1E,13,4C,3A,13,00,00
1001 DATA 8E,00,F7,00,42,41,51,57
1002 DATA 0D,00,0D,43,08,14,0E,14
1003 DATA 16,14,26,14,33,14,A9,00
1004 DATA 8D,00,FF,AD,04,03,8D,12
1005 DATA 13,AD,05,03,8D,13,13,A2
1006 DATA 4A,A0,13,8E,04,03,8C,05
1007 DATA 03,60,AD,12,13,8D,04,03
1008 DATA AD,13,13,8D,05,03,60,6C
1009 DATA 12,13,A5,7F,D0,F9,AD,00
1010 DATA 02,20,5B,13,90,F1,A0,00
1011 DATA 4C,6F,14,C9,30,30,06,C9
1012 DATA 3A,10,02,38,60,18,60,C8
1013 DATA B1,3D,C9,20,D0,03,C8,D0
1014 DATA F7,B1,3D,60,18,C8,B1,3D
1015 DATA F0,35,C9,22,F0,F5,6D,06
1016 DATA 13,8D,06,13,AD,07,13,69
1017 DATA 00,8D,07,13,4C,75,13,18
1018 DATA 6D,08,13,8D,08,13,90,03
1019 DATA EE,09,13,EE,0C,13,60,18
1020 DATA 6D,0B,13,8D,0B,13,90,03
1021 DATA EE,0A,13,EE,0D,13,60,0A
1022 DATA A8,B9,14,13,85,FB,B9,15
1023 DATA 13,85,FC,A0,00,8C,00,FF
1024 DATA A9,12,20,D2,FF,B1,FB,F0
1025 DATA 06,20,D2,FF,C8,D0,F6,20
1026 DATA 79,15,20,A3,15,20,E4,FF
1027 DATA F0,FB,A0,1B,B9,EF,13,20
1028 DATA D2,FF,88,10,F7,68,68,A9
1029 DATA 00,8D,00,02,4C,B7,4D,91
1030 DATA 91,0D,20,20,20,20,20,20
1031 DATA 20,20,20,20,20,20,20,20
1032 DATA 20,20,20,20,20,20,91,0D
1033 DATA 51,55,4F,54,45,00,4B,45
1034 DATA 59,57,4F,52,44,00,23,20
1035 DATA 4F,46,20,43,48,41,52,41
1036 DATA 43,54,45,52,53,00,55,4E
1037 DATA 49,44,45,4E,54,49,46,49
1038 DATA 45,44,00,4E,4F,20,43,48
1039 DATA 45,43,4B,53,55,4D,00,C8
1040 DATA B1,3D,D0,FB,98,30,04,C9
1041 DATA 06,30,1E,88,88,88,88,88
1042 DATA B1,3D,C9,27,D0,13,A9,00
1043 DATA 91,3D,C8,A2,00,B1,3D,9D
1044 DATA 00,0B,C8,E8,E0,04,D0,F5
1045 DATA 60,4C,5C,15,4C,C5,14,A0
1046 DATA 09,A9,00,99,06,13,8D,00
1047 DATA 0B,88,10,F7,A9,80,85,FD
1048 DATA A0,00,20,3F,14,20,AE,14
1049 DATA 20,0D,43,84,FA,A0,FF,20
1050 DATA 67,13,F0,D8,24,FD,F0,06
1051 DATA 20,8F,13,4C,8F,14,C9,22
1052 DATA D0,06,20,74,13,4C,8F,14
1053 DATA 20,9F,13,4C,8F,14,A0,00
1054 DATA B9,00,02,20,5B,13,C8,90
1055 DATA 0A,18,6D,0A,13,8D,0A,13
1056 DATA 4C,B0,14,88,60,18,AD,0C
1057 DATA 13,69,41,8D,0C,13,38,AD
1058 DATA 0D,13,E9,19,90,06,8D,0D
1059 DATA 13,4C,CF,14,AD,0D,13,69
1060 DATA 41,8D,0D,13,AD,06,13,6D
1061 DATA 08,13,48,AD,07,13,6D,09
1062 DATA 13,8D,0F,13,68,6D,0B,13
1063 DATA 8D,0E,13,AD,0F,13,6D,0A
1064 DATA 13,8D,0F,13,38,E9,19,90
1065 DATA 06,8D,0F,13,4C,05,15,AD
1066 DATA 0F,13,69,41,8D,0F,13,AD
1067 DATA 0E,13,E9,19,90,06,8D,0E
1068 DATA 13,4C,1A,15,AD,0E,13,69
1069 DATA 41,8D,0E,13,A0,01,AD,0C
1070 DATA 13,CD,00,0B,D0,20,C8,AD
1071 DATA 0D,13,CD,01,0B,D0,17,C8
1072 DATA AD,0E,13,CD,02,0B,D0,0E
1073 DATA AD,0F,13,CD,03,0B,D0,06
1074 DATA 20,89,15,A4,FA,60,98,48
1075 DATA 68,4C,AF,13,A9,04,4C,AF
1076 DATA 13,A9,00,8D,00,FF,A9,20
1077 DATA 8D,00,D4,8D,01,D4,A9,09
1078 DATA 8D,05,D4,A9,0F,8D,18,D4
1079 DATA 60,20,61,15,A9,81,20,9C
1080 DATA 15,A9,80,20,9C,15,4C,96
1081 DATA 15,20,61,15,A9,11,20,9C
1082 DATA 15,A9,10,20,9C,15,A9,00
1083 DATA 8D,04,D4,60,8D,04,D4,A2
1084 DATA 70,A0,00,88,D0,FD,CA,D0
1085 DATA FA,60,END
```

END

Continued from page 19

The Last Ninja: To get past the Samurai with the spear in the "Palace," get the Ninja Magic in the room above him, or stay very close to him pressed right against his body, and the spear will pass over you.

To pass the warrior and climb the steps to the "Inner Sanctum" you need Ninja magic or you can't climb the red steps. The magic is in an upper room before the steps. It turns you green.
Frozen Fire
Address Unknown

Legacy of the Ancients: In the Castle, there is a small river you are normally unable to cross. To cross it, you must obtain the Magic Ice. Go as close to the river as you can and select "Throw Magic Ice." The river will freeze and you will be able to cross it.

To receive Magic Ice you must return to the Information Booth in the Museum and bring the Old Man the Crown and Sceptre. (The Sceptre is on the first level of the Castle.) I forgot the whereabouts of the Crown. Sorry.
Contributor Unknown

Legacy of the Ancients: The Iron Key is used to unlock the doors that block the way to the Sceptre in the Castle. The Sceptre is located southwest of the River.
Peter Liang
Ann Arbor, MI

Legacy of the Ancients: When playing this game try to get at least one of each weapon. Superb Knives inflict more damage than Superb Bladed Staff against a Thrust Creeper. Superb Clubs work best against Slash Nettles. In Dungeons, the most handy weapons are the spells. Usually, Magic Flame will do the trick. If that doesn't work, use Firebolt. If you use a Superb Bladed Staff, watch out, since some monsters will destroy it. In the Wilderness, friendly monsters will usually give you a good deal. If a friendly monster offers you more food for less money, buy it.
Min Park
Munster, IN

Legacy of the Ancients: To get out of the Galactic Museum when you first start the game, face the door, hold the Gold Armband, and then use the Gold Armband. At every town, go to the Foodstore and buy any amount of food. He should ask you if you would like to earn some money, (if he doesn't, exit the town and try again). Say yes, and he will tell you to deliver some mail to a nearby town. Delivering it is an easy way of earning 95 to 115 gold.

If you don't know how to do the Stone of Wisdom, don't do it, as it is an easy way to lose all of your Turquoise Coins and all of your Intelligence Points. The Pirates Cove is to the west of Eagle Hollow. Only the four Jewels can destroy the Compendium.
Steven Gabharis
Flushing, NY

Maniac Mansion: To fix the Wires, you must have the Tools and one guy at the Fuse Box to turn the power on and off. Then use the Flashlight to see the Wires. (Without the Flashlight, forget it). Shine the Flashlight on the Wires and have Bernard fix them with the Tools.

Now Dr. Fred will play the video game Meteor Mess. Wait until Dr. Fred finishes playing, then look at the high score, which will be the combination to the Inner Door.

To lower the water of the Swimming Pool, you must first use the Weightlifting Machine to get strong. Then go outside and say "Open Bushes" (on the left side of the house). The bushes will open, revealing a grating. Say "Open Grating," and if you have used the weightlifting machine it will open.

Go into and past the grate, and you will come to a Water Valve. Have one guy at the the valve and one at the pool. Say "Turn on Water," switch to the guy at the pool, and have him go down to pick up the key and radio. Hurry, since lowering the pool water sets off the nuclear reactor. After you get the radio and the key, go up and get away from the pool. Then go back to the guy at the valve, and say "Turn Off Valve."

To get the key in Nurse Edna's room, you must have two guys at her door. Open the door and let one guy in. Edna will say her thing, then you get out of her room and run a little way away. She will take the other guy at the door instead. While Edna puts him/her in the dungeon, send the other guy in her room to get the key. Although you will get caught by her in her room, you will have succeeded in getting the key.
Contributor Unknown

Maniac Mansion: To call the police, you must have the teenager Bernard open the Old Fashioned Radio and take the radio tube. Then go up to the Father's Room and put the radio tube in the tube socket. Read the Wanted Poster which will tell you a number to call.
Billy Freedman
Glendale, NY

Murder on the Mississippi: To save trouble, go down and ask for the keys from Henry, the crew member mechanic. Tell him to follow you, and have him open all the doors that are locked. Each time he opens one, close it right away by pushing the joystick. Now you won't have to bug Henry for the keys.
Ron Tolentino
Naperville, IL

One-On-One: On any level, when the computer player brings in the ball, he usually goes toward the right. Try to get in front of him, preventing him from moving forward. While you have him contained, quickly start pressing your button which should allow you to steal the ball. If he shoots the ball, also start pressing your button in an attempt to block the shot. If you succeed in the steal or the block, quickly turn and drive down the lane for a slam. This play doesn't always work, and you could get called for hacking or reaching in, but it does help in opening up a close game. If done right you'll be dunking and hopefully breaking the backboard.
Victor R. Heredia
El Paso, TX

Phantasie I: In the Temple of the Gelnor Priests, the code is 45. In the Temple of the Evil Dosnebian Clerics, the password is Reven Tonem. To visit the gods, teleport to Town 99.
Steven Gabaris
Flushing, NY

Pirates: After your ship has been boarded and it looks as if you are going to be captured, just back off the right side of the

screen. You will be back on your ship ready to sail away. The enemy ship disappears.
Ken Winfield
Memphis, TN

Raid Over Moscow: When the bell rings on the first screen, push the RUN/STOP key and number 1 key at the same time, and you will automatically be at the disk's screen.
Edie Lebaron
Address Unknown

Rambo: When you start on the first screen, go fairly straight ahead and there will be a temple where you can get a bazooka. You can get this weapon if you want, but I don't recommend it, since all it does is shoot a bit faster. It also can't destroy bushes or palm trees.

After you get it, if you want it, I suggest you take on the prison camp from the left side because it's easier than the right. You should use your knife because it's silent. Then when you get in the prison camp, switch to your missile arrows and blast away. Get the MIA's out of there as fast as you can, because missile arrows make a lot of guards come after you!
Christian Enescu
Address Unknown

Skate or Die: A big point getter is when you do a channel jump over the channel aerials. Doing a twirl then clicking three or four times then another twirl and then a safe landing, gets you anywhere from 1700 to 1800 points per aerial. Second, long handplants get lots of points. Lastly, do a variety of moves, and you will usually get at least a 4000 bonus at the end of the ten passes.
Jesse Ayers
Indianapolis, IN

Skate or Die: At the first electric fence in Downhill Jam, go between the brick wall sticking out on the left and the green thing on the ground. This will carry you through a secret garage and will also make it easier to go off the short dropoff, which makes it easier to avoid the second electric fence. Also try to jump on the police car.
Keith Rains
Duncanville, TX

Skate or Die: To get an extra high score on the Downhill Jam (my highest is 20400), play the game with two players (you and a "dummy"), and punch the lights out of that dummy! To do this, set the skaters side by side and punch the dummy for as long as you can. The computer will accept your score as a record.
Juan Rodriguez
Abington, PA

Skate or Die: If the other guy has the stick in Pool Joust, drop in at the highest point on the pool. On the way down cross to the bottom. As soon as you hit the lip, go in the air to the top of the pool. Repeat this until you have the pole. It doesn't always work, but it's fun to try.
Keith Rains
Duncanville, TX

Summer Games I: When Pole Vaulting, you should use the medium pole grip for 4.00–5.10m. This pole grip is much more maneuverable than high pole grip. For greater heights, use medium to high pole grips, depending on your ability level.
Tony Heydon
Address Unknown

Summer Games II: The objective in the Javelin event is to gain your speed by pressing the fire button as fast as you can. It is much easier if you use a joystick with an autofire feature. I was able to increase my world record to 101.31 meters.
Johnathan Stapinsky
Winnipeg, Manitoba
Canada

Super Huey II: Sinking ships is easy if you know how. Take off and fly at an altitude of about 200 feet. Once you see a ship, pull back on the joystick until you're completely stopped. You level off and then dive at it. Keep pushing the pitch up and down, pushing the fire button. With a good aim you'll sink 'em every time.
Craig Henden
Address Unknown

Swiss Family Robinson: On the boat there are two levels: Bottom and Topside. To get off the boat, get and use these items: barrels, nails, saw, hammer and plank. Saw barrels then nail planks to barrels, load everything into your boat and then launch.
Justin Stephenson
Evansville, IN

Ultima I: When attempting Space Flight remember:

1. Space Dock costs 500 pence.
2. Wear a vacuum suit when docking or else.
3. Take the fattest ship for maximum fuel, the slimmer ship for shields.
4. When going back in time, wear a Reflect Suit in case of radiation.

Jason Haas
Address Unknown

Ultima II: In each town there is someone important. Those people stand still.

In time period 1990, enter the town in Texas and walk over to the inn. There is a character there who if given gold from 200 to 900 will raise your status.

If you're in a dungeon or tower and you run out of torques, press K to come out of a Dungeon and D to get out of a tower.

You need the ring to get to mines.
Contributor Unknown

Ultima III: Your best bets for staying alive are a Ranger for fighting, a Cleric for healing, a Wizard for offensive spells, and a Thief for stealing and dungeons. You can bribe guards by pushing the O key and typing "Bribe," then the guard's direction.

If you want massive gold, go to the town Montor East, where they have an armory and weapon shop from which you can steal a lot of treasure.
Mike Cramer
Redding, CA

Ultima IV: You do not need the balloon to get the white stone which is hidden in the Serpent's Spine Mountains. Instead, go to

F'A", F'A" and blink to the west. You will appear in the clearing where the white stone is. Search to find it.
Doug Smith
Milton, Florida

World Games: In Weight Lifting, the key to the timing lies in the breathing. Let your lifter breathe twice between lifts (in + out = two breaths). On the last lift he doesn't breathe, so just imagine him breathing.
Danny Correia
Saint John, New Brunswick
Canada

Yie Ar Kung-Fu: To beat Pole, jump immediately to the right of him. Kick him once, then jump over him. When he comes at you, just jump-kick him. When he shows off, down punch him, and repeat until he's dead.
Mike Cramer
Redding, CA

Yie Ar Kung-Fu: To defeat Club, jump diagonally and land on top or as close as you can to him. Then start giving him high punches or low kicks. This way his clubs can not touch you.

To defeat Pole, duck when he charges and give him a low kick when he is close enough. Repeat this step until he is knocked out.

To defeat Star, jump every time you hit her or when you get hit to avoid her sheningans, and you will save a lot of strength.
Jeffrey Wong
Address Unknown

Zork I: When you are at the bottom of the rainbow, wave the sceptre and it will become solid. Then look and you should see a pot of gold!
Eddie Staszko
Mayville, WI

Zork I: When you reach the cyclops room, make sure you have the bottle of water and the sandwich (both found in the paper sack in the kitchen of the white house) with you. Give the sandwich to the cyclops, and when he eats it give him the bottle of water. This will cause the cyclops to fall into a deep sleep. He will not wake up unless you hit him. There is also another way to deal with him (for good). When you are in the room say "Odysseus" or "Ulysses" and he will run, knocking down the east wall and breaking down the nailed up door in the white house. This leaves a passage to the living room. Once you have done this, go up from the cyclops room and see where you end up.
Alan Barrett
Boise, ID

Zork II: When you get to the first puzzle room (SW of the carousel room), the answer to the riddle is "well."
Andrew Zeitoun
Scarborough, Ontario, Canada

Zork III: When you are at the shore of the Flathead Ocean, wait around until the ship comes floating by. Then say, "Hello Sailor." The sailor will throw you a vial of Invisibility Potion.
Eddie Staszko
Mayville, IN

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